MECCANO® Magazine

22½p

QUARTERLY

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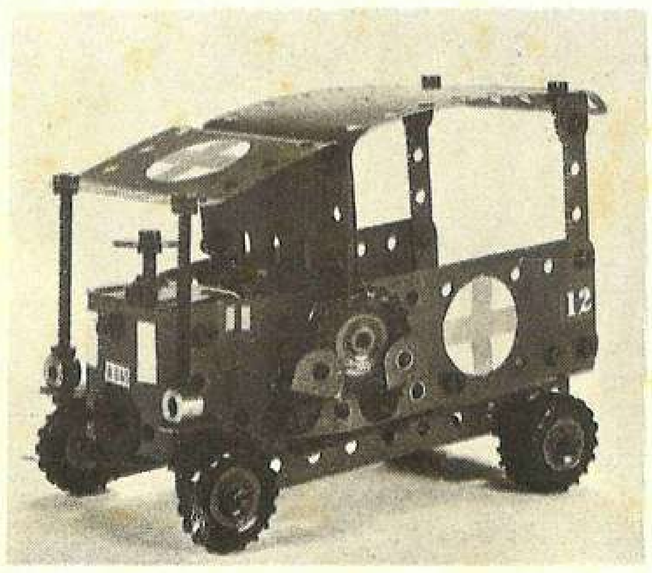
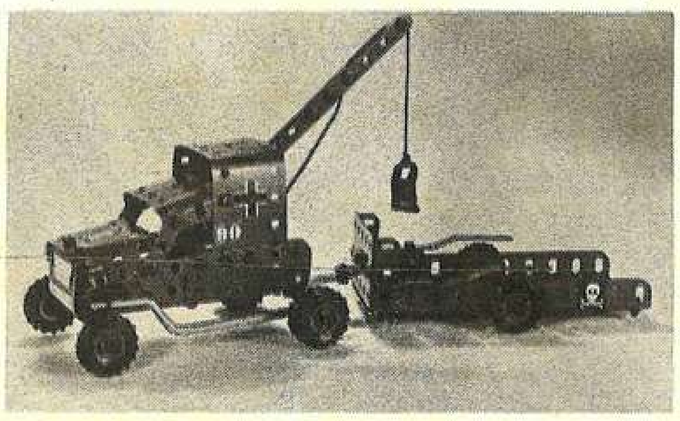
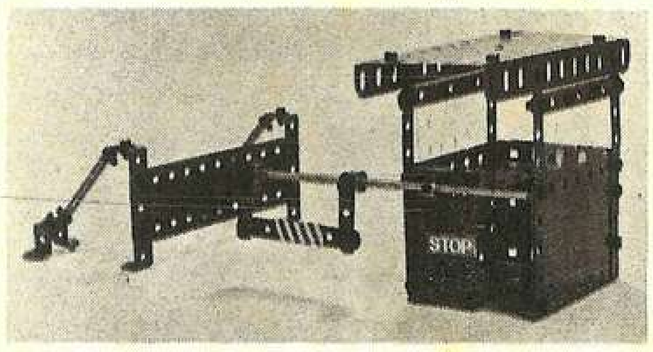
Mini Moke. ↑ Recovery Unit. ↓

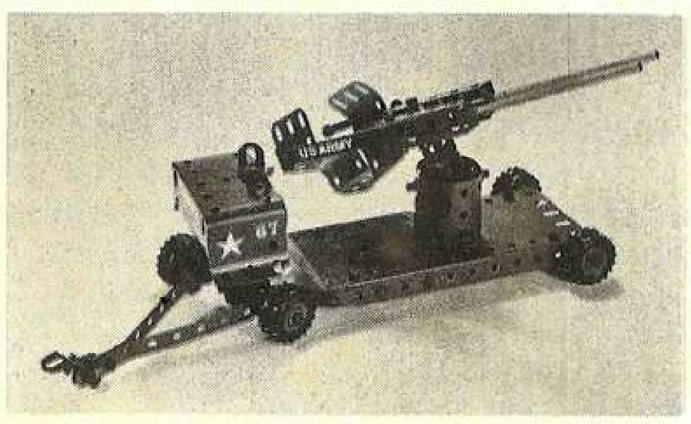


Ambulance. ↑ Checkpoint. ↓

Spotter Plane. ↑ Anti-aircraft Gun. ↓







COMING SHORTLY

AT THE British International Toy Fair, to be held in Brighton from 25th to 27th January, Meccano Limited will be announcing, among other things, the introduction of a fourth Multikit to the Meccano system. Under normal circumstances, details of a new product are shrouded in secrecy until officially launched at the Fair, but, although this MMQ is scheduled to appear a week or two before the Fair is held, we have been given special permission to allow our readers a preview of the new kit.

Titled 'Meccano Combat Multikit', the new outfit is a compact, yet remarkably versatile military-orientated set with a distinct dual role: it is self-contained, i.e. it can be used on its own for building models, and it is also designed as an add-on set for the existing, highly successful Army Multikit. When used with the Army Kit, it increases the scope of the larger set enormously and, in fact, three excellent combination models appear in the Combat Manual. (One of these – a superb Half Track and Howitzer – will be featured in detail in the April MMQ).

Even on its own, however, the new kit offers tremendous modelling possibilities. The Manual includes step-by-step photographic instructions for nine diverse models and, not to put it too lightly, they are marvellously realistic for their size. Examples of the models appear above (see also Page 9) and a glance at the photographs will bear out my words. Especially interesting is the fact that, although the parts in the set are finished in the same military green as the Army Multikit parts, they are almost all standard components. The only 'specials' are a 1½" Narrow Strip (No. 445) and a new Tyre to fit the standard ½" Pulley. This Tyre is identical in design to existing Dinky Toy Tyre No. 093, although it will be made from a more-pliable material and will carry No. 452.

The Combat Multikit is scheduled to appear during the first half of the year and, although the price has not yet been fixed, it is expected to sell in the U.K. at around the £4 mark. Thus the least expensive of all the Multikit sets, I am confident it will prove a big success.

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SET 7 + MODEL

SHOVEL DOZER

by Spanner

Inspired by a Dinky Toy – Built from Meccano

WHAT DO Meccano and Dinky Toys have in common? Under normal circumstances, very little – beyond the fact that they are both manufactured by Meccano Limited – but there can be exceptions, and the model featured here is one such exception: it was inspired entirely by a Dinky Toy!

The toy in question was No.977 Shovel Dozer and a glance at the accompanying photographs will show just how remarkably well it has reproduced in Meccano. The equipment required to build this Meccano version is a No.7 Set and a Track Pack, plus four additional Couplings which serve as adaptors for the track driving Sprockets. If a Track Pack is not available, however, four standard Road Wheels can be substituted, this also serving to make the Shovel Dozer a straight No 7 Set model.

As regards construction, the chassis consists of a 5½" x 2½" Flanged Plate 1, to each side flange of which a 5½" Flexible Plate 2 is bolted, this Plate extending beyond the front of the Flanged Plate by two holes. Note that the forward securing Bolt also fixes a Flat Trunnion 3, by its apex, through the forward end hole of the Flanged Plate flange. Another Flat Trunnion is bolted to the rear end of the flange, then the two Trunnion bases are connected by an 8½" compound strip 4, one of the securing Bolts in each case also holding a Double Bracket in place. A 5½" x 2½" Flexible Plate 5 is bolted to the outer lug of these Double Brackets. Compound strip 4 incidentally, is built up from two 5½" Strips, overlapped five holes.

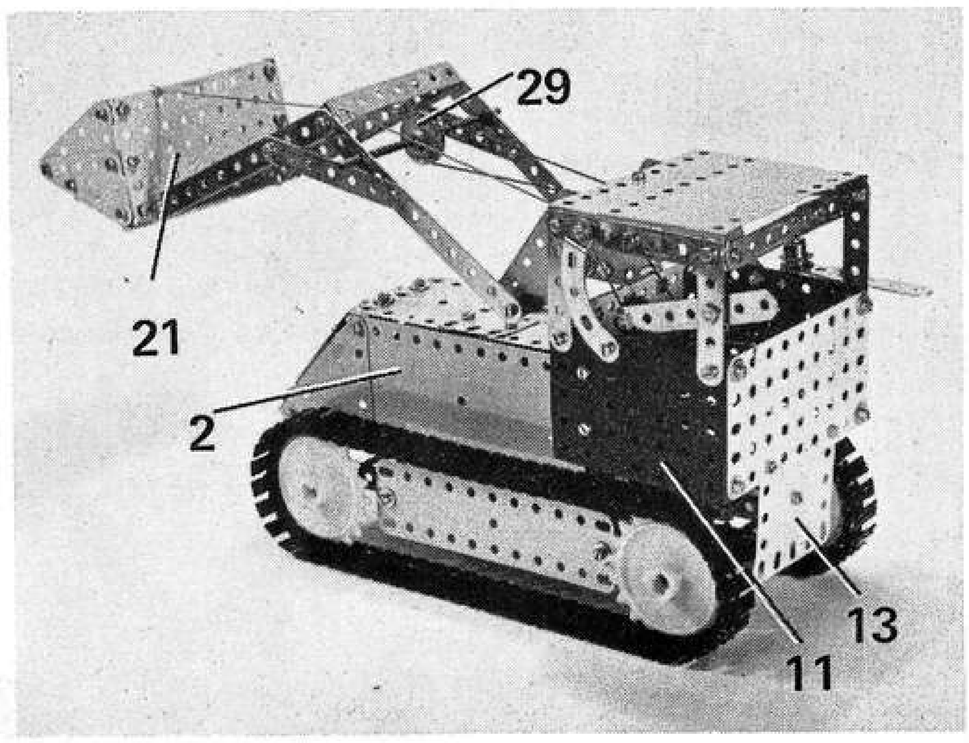
A 2½" x 1½" Flanged Plate 6 is bolted to the rear flange of Plate 1 then Flexible Plate 2 at each side is extended forward by a 2½" x 2½" Triangular Flexible Plate, the upper securing Bolt also fixing a 2½" x ½" Double Angle Strip 7 between each side of the model. The upper rear corners of Plates 2 at each side are also connected by a similar Double Angle Strip, while a third Double Angle Strip 8 connects the lower front corners of the Triangular Flexible Plates. Bolted to the backs of the upper Double Angle Strips are two 2½" x 2½" Flexible Plates, joined by a 2½" x 1½" Flexible Plate 9, the three Plates together enclosing the top of the bonnet. The sloping front of the bonnet is provided by two 2½" x 2½" Flexible Plates 10, overlapped four holes, the lower Plate being bolted to Double Angle Strip 8, while the upper Plate is attached to two Obtuse Angle Brackets which are in turn bolted to Double Angle Strip 7.

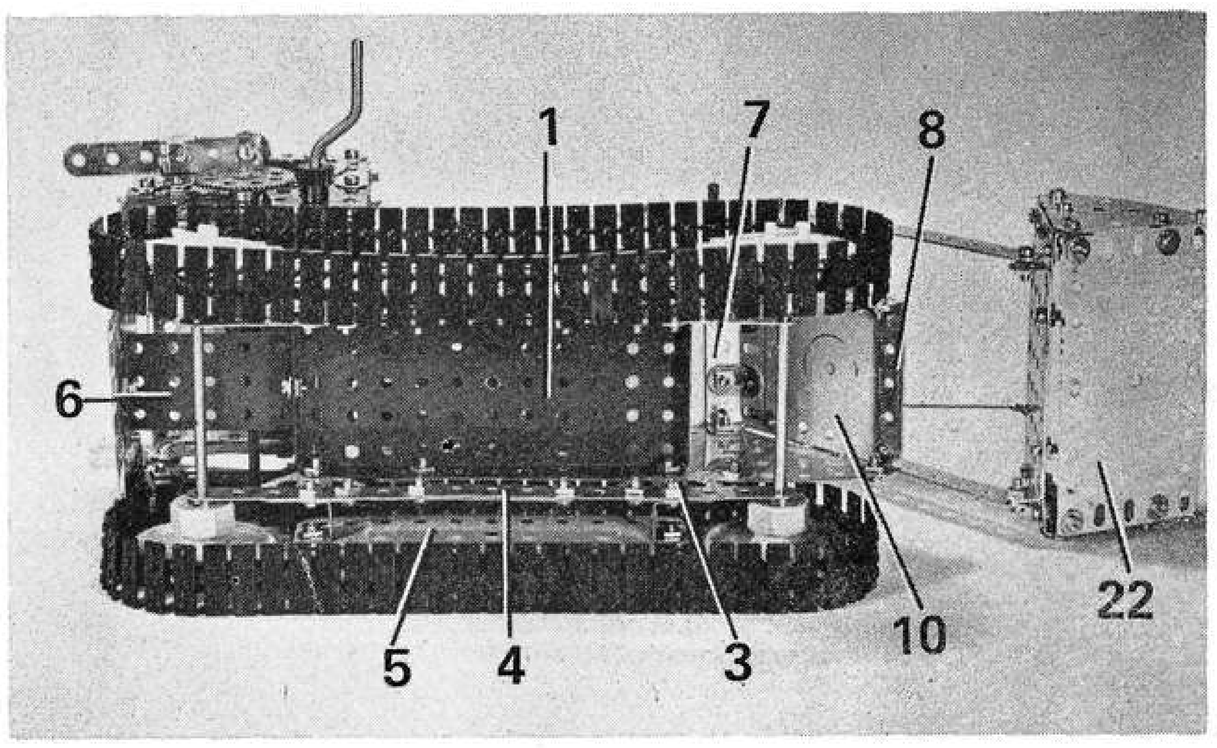
CAB AND SHOVEL ARM

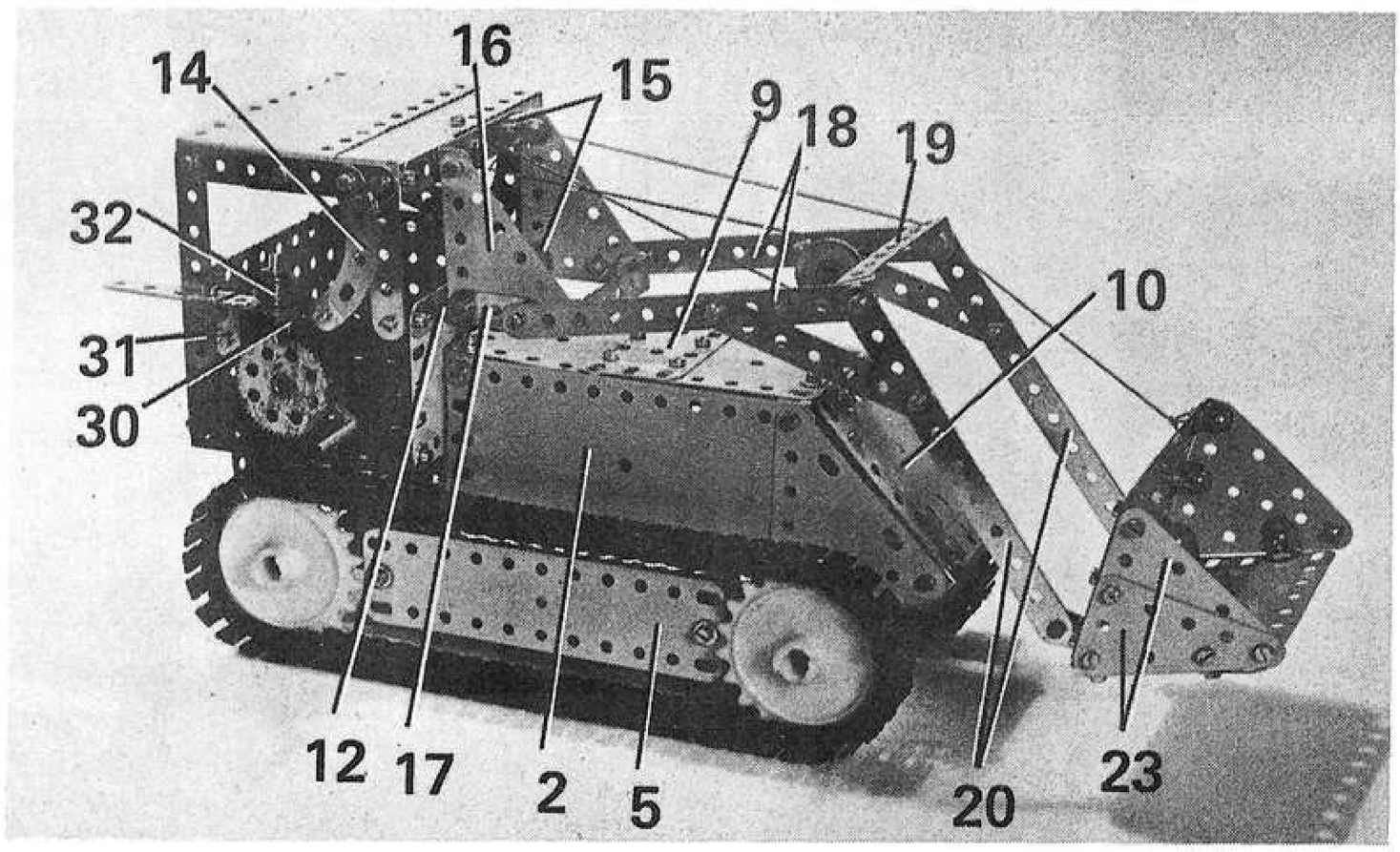
Turning to the cab, this is built up from two 3½" x 2½" Flanged Plates 11, connected together at the back by a 4½" x 2½" Flat Plate and, at the front, by a 4½" x 2½" Flexible Plate overlayed along its upper edge by a 4½" compound strip 12, built up from two 2½" Strips. The Flat Plate is centrally extended four holes downwards by a 2½" x 2½" Flexible Plate 13 and the centre of this Plate is bolted to the rear flange of Flanged Plate 6.

The cab window pillars are supplied by four 2½" Strips, one at each corner of the cab, and the upper ends of these are connected together by compound strips, at the same time fixing in place the cab roof. This is supplied by two 5½" x 2½" Flexible Plates overlapped three holes and bent to shape. Each side compound strip is built up from two 2½" Strips; the front compound strip by a 3½" and a 2½" Strip and the rear compound strip by a 3" and a 2½" Strip. The front and rear compound strips are attached to the upper ends of the window pillars by Angle Brackets. Bolted between each

Below left, a rear view of the Shovel Dozer showing the 'blocky' nature of the cab. Below right, an underside view showing construction of the chassis. Couplings serve as adaptors for fixing the track drive sprockets to the Rods.







Built with a No. 7 Meccano Set, plus a Track Pack, this Shovel Dozer makes an interesting working model. It was inspired by a Dinky Toy.

side compound strip and nearby Flanged Plate 11 is a 2½" Stepped Curved Strip 14 serving as an additional, shaped, window pillar.

Two 2½" x ½" Double Angle Strips 15 are now bolted one to the front compound strip and the other to compound strip 13. Bolted to the lugs of these Double Angle Strips are two 2½" x 2" Triangular Flexible Plates 16, partially overlayed along their lower edge by a 1½" Strip 17 and connected together at the lower front corners by another 2½" x ½" Double Angle Strip. Lock-nutted to the forward ends of 1½" Strips 17, but spaced from them by a Collar on the shank of each securing ½" Bolt, are two 5½" Strips 18, connected together by a 3½" x ½" Double Angle Strip 19 and extended forwards and downwards by two more 5½" Strips 20. Strips 18 and 20 are braced across the 'elbow' by a 2½" Strip, as shown.

Lock-nutted between the forward end of Strips 20 is another 3½" x ½" Double Angle Strip which serves as the anchoring point for the dozer shovel. This consists quite simply of a 4½" x 2½" Flat Plate 21 and a 4½" x 2½" Flexible Plate 22, arranged in a 'Vee' shape and attached by Angle Brackets to the bucket ends. Each of these ends is built up from two 2½" x 1½" Triangular Flexible Plates 23, overlapped one hole and positioned, as shown, to result in a larger triangle.

CONTROL SYSTEM

We now come to the control systems for the bucket and bucket arm movements. Dealing first with the bucket, a length of Cord is tied to the upper edge of Flat Plate 21 and fed back through holes in Double Angle Strip 19 and the front compound strip in the cab roof, to be tied to the top edge of the Flat Plate at the rear of the cab. Pressing on this Cord is a ½" Plastic Pulley 24, mounted on a ¾" Bolt locked in the end hole of a 3½" Strip 25 which is in turn lock-nutted to the rear left-hand roof support. Note that the Cord passes around the underside of the Pulley although, in the accompanying close-up photograph of the cab, it is shown running over the Pulley (when we took the photograph, we removed the back of the cab to show the interior and hooked the Cord over the top of the Pulley to help hold the cab-back in picture).

Movement of the bucket arm is controlled by a 5½" Crank Handle 26 journalled in right-hand Flanged Plate 11 and in a Double Bent Strip 27 bolted to the inside of left-hand Flanged Plate 11. The Crank Handle is held in place by a Collar inside the right-hand Flanged Plate and by a ½" Pinion outside the Plate. This Pinion meshes with a 57-teeth Gear Wheel 28 on the end of 5" Rod mounted in the centre holes of the Flanged Plates and held in place by a Collar. A Cord Anchoring Spring is fixed on the Rod and, to this, is attached a length of Cord which is wound several times round the Rod, then passed out through one of the holes in the upper cab compound strip, round a 1" Pulley 29 on a 4½" Rod held by Spring Clips in the third holes from the front of Strips 18, and is finally brought back to be tied to the front roof compound strip.

A ratchet mechanism to prevent the Cord from unwinding unintentionally under the weight of the bucket arm is provided by a 1½" x ½" Double Angle Strip 30, extended by a 2½" Strip and bolted to the back of a 1" x ½" Double Bracket 31. The inner lug of this Double Bracket is lock-nutted through its end hole to right-hand Flanged Plate 11. The forward lug of the Double Angle Strip locates between the teeth of Gear 28 and a small weight to hold it in position is provided by a ½" Pulley with boss 32, fixed by a ¾" Bolt to the end of the Double Angle Strip.

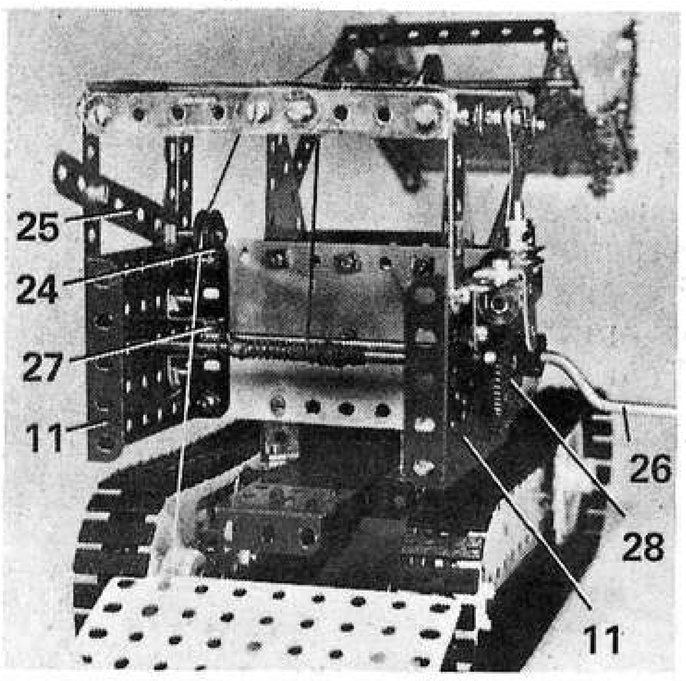
This leaves only the crawler track to be fitted and the model is finished. Each track consists of 62 Track Links and the tracks are carried on the 20-teeth Sprockets contained in the Track Pack. Using Couplings as adaptors, the Sprockets are mounted on two 4" Rods journalled in the end holes of compound strips 4.

Although this completes the model, as illustrated, it is worth mentioning that, with the parts remaining in the No.7 Set, it should be possible to add a certain amount of embellishment to the model – an exhaust pipe, for instance, and perhaps simulated hydraulic rams for the bucket arm. However, I leave you to add your own chosen extras.

PARTS REQUIRED

8- 2	2-15b	1- 48	4-126a
4- 3	1-19h	6- 48a	1-176
1- 4	1-22	1- 51	1-188
9- 5	1-23	1- 52	2-189
2-6a	1-23a	2- 53	5-190
4-11	1-26	2- 53a	2-191
1-11a	1-27a	4- 59	4-192
16-12	2-35	4- 63	4-221
2-12a	141-37a	2- 90a	2-222
2-12c	127-37b	1-111	2-223
1-15	30-38	2-111a	4-P83
1-15a	1-45	3-111c	124-P91

A close-up view looking into the back of the cab. Note that, in operation, the shovel control cord passes beneath the ½" Pulley.



MECCANO MISCELLANY
by MIKE NICHOLLS

Words of Wisdom Past

Mike Nicholls

ANYONE WHO contributes a regular feature to a magazine soon comes to feel a sort of "kinship" between himself and the readers of the magazine. At least 'Meccano Miscellany' has certainly given *me* this feeling!

With "Miscellany", I like to think that I am writing *as* a Meccano enthusiast *for* fellow Meccano enthusiasts and this of course also means that all MMQ readers have the right to take me to task if they disagree with anything I say. (Indeed, I am grateful when they do so, as a bit of healthy controversy keeps us all on our toes!) Equally, it is always pleasing to learn that readers sometimes *agree* with me and, on this subject, I was delighted to discover from correspondence following last July's MMQ that, like me, many readers also find the "Suggestions" section of the old, 1920's Meccano Magazines particularly interesting today.

In the old magazines, readers' suggestions were described in the form of editorial comment and it is these comments, or 'answers', that are interesting in the light of today's knowledge – and the composition of the current Meccano system. Some ideas were well-received, but never came to fruition; others were strongly rejected, but we see them in the range today! It is also clear that today's Meccano engineer owes thanks to the inventive minds of our 'ancestors' for some of the components we now take for granted. And, too, it makes you realize that, if you have any inspired ideas for a new part now, the chances are some genius has beaten you to it – by 30 years!

The remainder of this article is devoted to extracts from early magazines and you can see straight away that, although some current familiar parts did not exist in the '20's and '30's the, Meccano engineers of the time had already forseen their uses:-

July 1928

"RUBBER CORD – Elastic bands can quite easily be used where a light drive is required. Rubber cord, however, would no doubt be found quite useful if incorporated in the smaller outfits".

June 1929

"RUBBER BELTS – We do not intend to introduce belts prepared from rubber, leather or canvas, as we consider that the existing methods of drive transmission that can be built up from standard parts fulfill all requirements." (That's a pretty definite refusal!)

May 1931

"DRIVING BELTS – Elastic bands are excellent for use as "transmission belting" between two Meccano Pulley Wheels. The difficulty with these bands, however, is that they are effective only when stretched to a certain tension and, when either too slack or too tight, do not transmit the drive effectively. This necessitates the use of a very large range of sizes of bands if the transmission is to fulfill all requirements. We therefore consider it better to form endless transmission belts for use with the Pulleys from suitable lengths of Meccano Cord."

Times change and Meccano have never been too proud to change with them; rubber Driving Bands have been included in the Meccano system for many years! the Flexible Plates also represent a change of heart:-

April 1928

"PLIABLE PLATES – We note with interest your suggestion regarding pliable plates. We are not in favour of making such additions, however, as the general strength of the system would be considerably weakened."

September 1928

"SPRINGY PLATES – We are going into the question of manufacturing plates of very thin pliable metal. We agree that an article of this type would be most useful in the construction of certain models".

April 1932

"PLIABLE PLATES – Plates made of thin metal that could be bent easily to any desired shape would be useful in certain types of constructional work. Your idea would be to supply the plates with perforations around the edges only, so that the parts would provide a plain surface when used for covering-in large frameworks. The drawback to these parts is that their utility would be seriously handicapped owing to the relatively few number of points at which they could be attached. The idea of special covering material presents distinct possibilities, however, and your suggestion will receive careful attention".

In due course, as you know, the Flexible Plates did appear. However, "Red Herrings" also appeared from time to time, such as this one:-

April 1929

"BOX SPANNERS – You will be pleased to hear that in the near future we propose to introduce a set of box spanners that can be fitted to the standard screwdriver. Watch the 'MM' for a further announcement".

I wonder if that correspondent is still watching!

It is interesting to note how engineering advances have allowed the introduction of parts today that were not possible 50 years ago:-

May 1928

"HELICAL GEARS – Although Helical Gears would give

smoother motion, the cost of manufacture of this type of gear prohibits its introduction".

March 1928

"GROOVED RODS – We note your suggestion regarding the cutting of a groove in Rods. As you remark, an equivalent of keyed rods would be obtained by screwing the set screws of the Pinions and Gear Wheels into the groove in the Rod. We are afraid, however, that the diameter of the existing Rods is too small to allow such a scheme being carried out."

June 1928

"NEW TYPE ROD – We note that you consider a suitable addition to the system would be a rod having a portion of its length keyed. We are keeping your idea before us for future reference."

September 1928

"KEYED RODS – We are unable to consider the introduction of rods having a key-way cut in them, as the standard Rods are of too small a diameter to allow this to be done".

At the time, these were perfectly legitimate comments to make, but engineering techniques subsequently advanced and the parts suggested were eventually introduced.

On a different subject, Meccano enthusiasts tend to complain when Meccano Limited "mess about with" their colour schemes, but this has not always been the case:-

September 1928

"COLOURED MECCANO – While we do not agree with your suggestion that Meccano should be coloured in blues and yellows, we are experimenting with a steel blue colour for some certain parts, as we find this gives the article a more relatistic appearance."

Some other suggestions made quite frequent appearances. The birth pangs of the Conical Disc, for instance, were loud and long:-

June 1928

"CONICAL PIECE – We note that you suggest a conical-shaped piece for fastening over the 2" and 3" Pulley Wheels, thus forming a disc wheel. Your idea is most interesting, but is impracticable as the part would serve no useful purpose".

October 1928

"WHEEL DISCS – While these parts would prove of use in giving a neat appearance to the wheels of model motors, we could not consider introducing them for this reason alone. Perhaps readers could suggest further uses for a conical disc?"

January 1929

"CONICAL DISC – Sometime ago in these columns we asked readers to forward their suggestions as to how a conical disc could be employed in the system in addition to its use in a disc cover for the Pulley wheels in model motor cars. Numerous suggestions have been received that conical discs could be used effectively, in conjunction with a Pulley Wheel fitted with a Rubber Ring, as a cone clutch. This is an interesting idea, but we would point out that the conical disc, in order that it might be used on the motor chassis, would necessarily have to be 3" in diameter, and this would mean that a cone clutch incorporating it would be of rather clumsy dimensions".

The Conical Disc as we know it (7/8" diameter) was introduced in 1937. Since then, however, its value to the system has been somewhat diminished – though not entirely removed – by the passing of the disced wheels as fitted to full-size motor vehicles, but other parts which occasioned lengthy discussion in the MM are still vital today:-

February 1929

"SHORTER GRUB SCREWS – We are considering your idea that extra-short Grub Screws should be included in addition to the standard size. This would enable a Coupling, for instance, to be used as a belt pulley or winding drum for a crane, as the heads of the Grub Screws would not protrude above the surface of the Coupling".

June 1931

"NEW GRUB SCREW – In gear-change mechanisms, where the Meccano 57-teeth Gear Wheel has to be moved into or out of engagement with the Meccano ½" Pinion, or vice versa, it often occurs that the projecting end of the Grub Screw in the Boss of the ½" Pinion fouls the teeth of the Gear Wheel. The only way in which this can be overcome at present is by filing the tip of the Grub Screw until the required clearance is obtained. We are therefore interested in the suggestion that a special small Grub Screw should be introduced to overcome this difficulty. We shall give this idea consideration".

November 1934

"SHORTER GRUB SCREWS – There are two lengths of Grub Screws at present included in the Meccano System namely 5/32" and 7/32", but even the shorter size is sometimes found too long, especially in gear-box construction. When ½" Pinions are meshed with similar Pinions, or with 57-teeth Gears that slide out of engagement on the same side as the Boss, the teeth must inevitably foul the Grub Screw in the Pinion. The only remedy for this has been to file down the Grub Screw until there is sufficient clearance for the Gear teeth.

"Shorter Grub Screws that fit flush with the Pinion Boss can be obtained from the Collars used in the No. 2 Motor Car Constructor Outfit. These Grub Screws will be found useful for other purposes, especially in gear-boxes, and your proposal that they should be included in the standard Meccano range will receive attention".

As you know, the suggestions did receive attention and the extemely useful 7/64" Grub Screw was subsequently introduced to the system. Sometimes, however, a bit of a delay can result. Of particular interest to us today:-

July 1928

"HEXAGONAL NUTS – We were interested in your suggestion, and agree that nuts of this kind would somewhat simplify model-building. We are therefore giving further thought to your idea".

February 1929

"HEXAGON NUT – Your suggestion that the four corners of the standard nut should be removed, thus forming a hexagon nut, is interesting. We agree that this alteration would considerably increase the ease with which nuts could be fastened to bolts, and moreover, there would be less likelihood of nuts "fouling" each other in confined spaces. We will look into this suggestion with care".

The wheels of 'progress' can grind slowly!

We must thank the MM readers of the '20's and '30's for many of the useful parts in the system today, and if some of their ideas seem a bit strange, I wonder what readers of the MMQ in 1994 will think of *our* ideas!

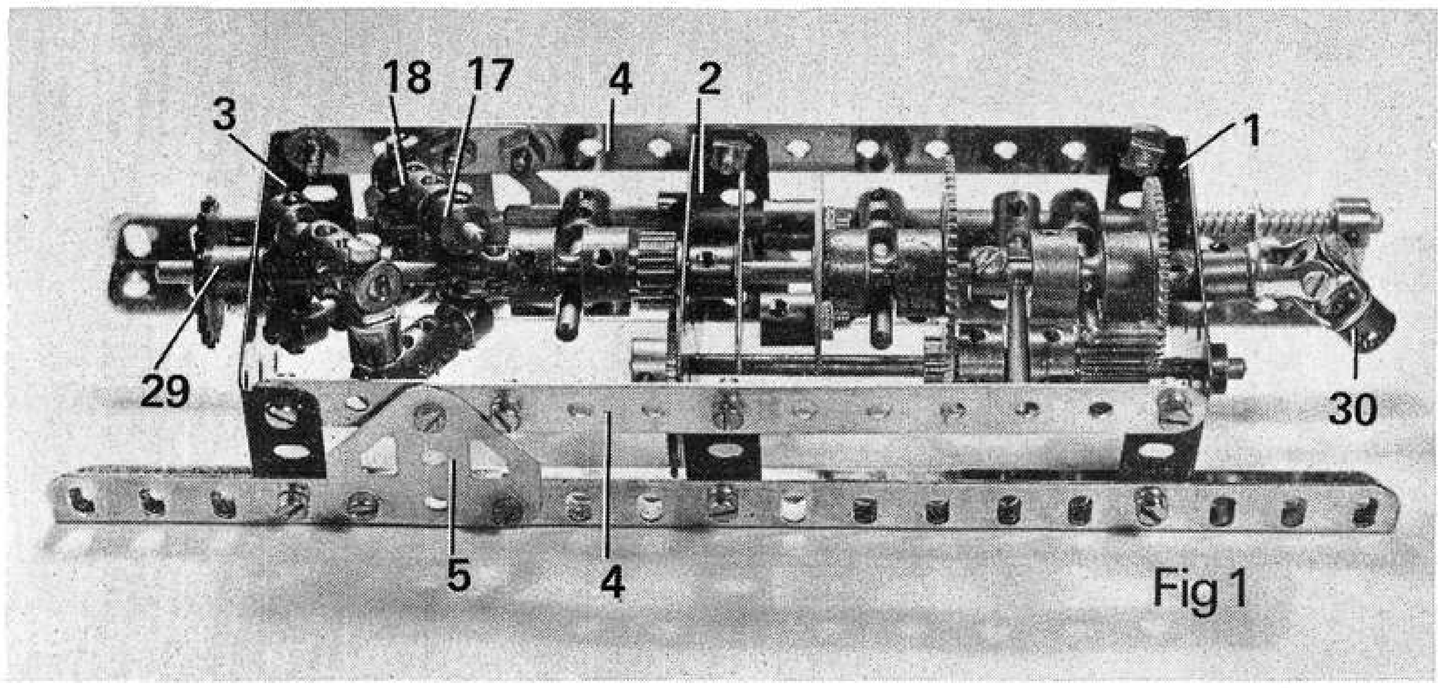


Fig 1

AMONG THE MODEL BUILDERS

with 'Spanner'

IN ONE of the 'old' monthly Meccano Magazines – the January 1971 issue to be precise – we illustrated a really superb model of an early Austin 7 car which had been designed and built by Mr Michael Edwards of Watford, Herts.

That was four years ago and it would not normally be significant now, except that an improved version of the Austin 7 is still in existence and was displayed to good effect at the last Henley Meccano Exhibition. I saw it there and I was again captivated, both by its amazingly realistic outline and by it's many advanced working features, the latter including remote-control steering and a 2-speed automatic gearbox. It struck me that, although I could not again consider a general article on the model as a whole, the automatic gearbox would make an excellent item for "Among the Model-Builders" – so here it is! I am indebted to Mr. Edwards for supplying the details which enabled us to build-up the unit illustrated.

The framework is supplied by three 2½" x 1½" Flanged Plates 1, 2 and 3, spaced apart as shown and connected by two 9½" Angle Girders and two 6½" compound strips 4, the latter each built up from a 5½" and a 2" Strip. A Flat Trunnion 5 is bolted to each Angle Girder and compound strip to provide additional bracing. Journalled in the top row centre hole of Plates 1 and 2 (as seen in fig.1) is a 4" Rod carrying, in order between the Plates, a Collar, a 50-teeth Gear Wheel 6, a Socket Coupling 7, a Collar 8, carrying a standard Bolt, a 60-teeth Gear Wheel 9, a second Socket Coupling 10, an 8-hole Bush Wheel 11 and a Double Arm Crank 12. This Double Arm Crank is fixed on the Rod, as also is Collar 8 and the first-mentioned Collar, but the *remaining parts are free to revolve on the Rod.* Note, however, that Gear Wheel 6, although loose on the Rod, is fixed in one end of Socket Coupling 7, while Gear Wheel 9 and Bush Wheel 11 are similarly fixed in the respective ends of Socket Coupling 10. Two Rod Sockets 13 are secured to the face of Bush Wheel 11 through diametrically opposite holes.

The inner end of the 4" Rod, after passing through Flanged Plate 2, is fitted with a Washer and then projects part-way into the bore of a ½" Pinion 14 fixed on the inner end of of a 3½" Rod journalled in the top row centre hole of Flanged Plate 3. Note that the Pinion is fixed on the Rod by means of a small 7/64" Grub Screw (No.69c) which does not project above the surface of the Pinion Boss. This is necessary to ensure that the Grub Screw does not impede the movement of a Socket Coupling 15 which is free to slide on the Rod and which carries in its other end a Coupling 16 also free to slide on the Rod. This Coupling, in fact, serves as one end of a centrifuge unit which is built up as follows:

Screwed into the end transverse bores of the Coupling are two long 7/32" Grub Screws, care being taken to ensure that the Screws do not foul the 3½" Rod. A Collar 17 is then screwed, by means of one of its threaded bores, onto the protruding end of the Grub Screw as far as possible, but without actually locking in place as the Collar must pivot. Fixed in the centre bore of the Collar is a 1" Rod, on the other end of which a Coupling 18 is fixed, the Rod projecting approximately half-way into the bore of the Coupling. Two more Collar/Rod/Coupling arrangements are similarly built up and these are attached to a Collar 19 which is fixed on the 3½" Rod. Each of the Couplings in these second units is then pivotally connected to nearby Coupling 18 by a 1⅛" Bolt which is screwed through the end threaded bores of one of the Couplings, is fitted with a locknut, a Washer, a Collar 20, another Washer and is finally screwed into the end threaded bore of the other Coupling.

All the pivotal connections must be as free as possible so that, when the 3½" Rod revolves, the arms of the centrifuge expand outwards and serve to pull Socket Coupling 15 along the Rod. A 'stop' to prevent the unit travelling too far is provided by another Collar 21 fixed in the appropriate position on the 3½" Rod.

A layshaft is next provided by a 4½" Rod which is journalled in the bottom row centre holes of Flanged Plates 1 and 2. This Rod is free to slide a short distance in its bearings, but is prevented from excessive movement by a Collar at one end and a 57-teeth Gear 22 at the other end. This Gear meshes with Pinion 14 and

Figs. 1, 2 and 3: an interesting 2-speed Automatic Gearbox developed by Mr Michael Edwards of Watford, Herts for use in his superb Austin 7 model

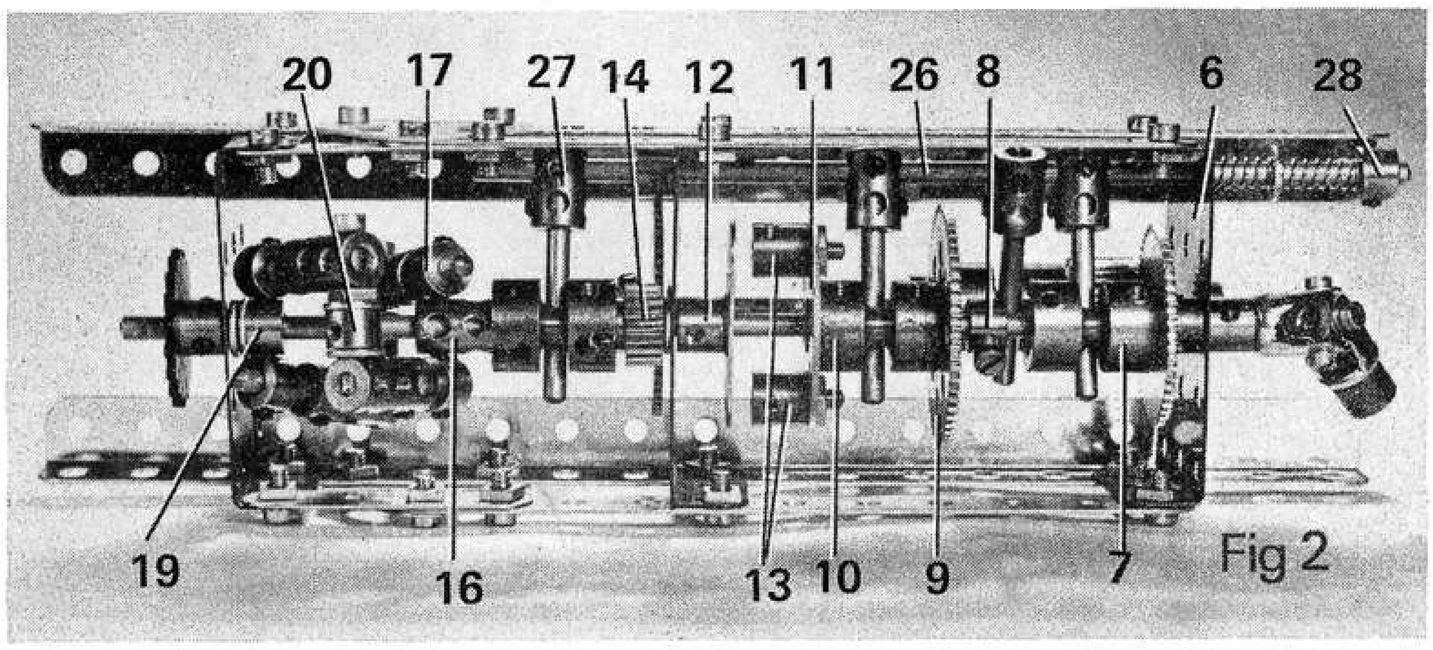


Fig 2

the permissible movement of the layshaft is governed by the fact that the Gear and Pinion must remain in mesh at all times. Fixed on the layshaft, between the Plates, is a ¾" x ½" Pinion 23, this being secured by a big 7/32" Grub Screw, This Screw locates (or not, as the case may be) with the slot in one end of a Socket Coupling 24, which is free to slide on the layshaft and in the other end of which a ½" Pinion 25 is fixed. This Pinion is also free to slide on the Rod.

An inter-stage link, controlling movements of the various gear units, is supplied by a 6½" Rod 26 sliding in the vertical row centre holes at one side of Flanged Plate 1 and 2. This Rod is fitted with three Short Couplings, appropriately situated between the Plates, each Short Coupling carrying a 1½" Rod in it's central bore. The first of these Rods locates in the waist of Socket Coupling 7, the second in the waist of Socket Coupling 24 and the third in the waist of Socket Coupling 10. A Collar is added to Rod 26, outside Plate 2, to serve as a 'stop', then a final Short Coupling 27, carrying a 1½" Rod, is fixed on the Rod, the 1½" Rod locating in the waist of Socket Coupling 15. Two Compression Springs, separated by a Washer and held in place by a Collar 28, are added to the opposite end of Rod 26 outside Plate 1. These Springs ensure the return of the gearbox to 'neutral' when the speed of the centrifuge unit is insufficient to achieve gear-meshing.

This completes the gearbox, proper, although it should be mentioned that, in Mr. Edwards' original unit – and in our copy illustrated here – a 1" Sprocket Wheel 29 was added to the input shaft to receive the drive from the motor. Also, a Universal Coupling 30 was added to the output shaft to transfer the drive to the rear wheels of the Austin 7.

OPERATION

Thanks to the action of the Compression Springs on Rod 26, the Gearbox remains in neutral, not only when drive is cut off, but also if the input drive is insufficient to bring the centrifuge unit into operations ('tick-over' speed!). The drive is transferred through Pinion 14 to the layshaft and from there through Pinion 25 to Gearwheel 9. However, because Socket Coupling Unit 10 is free on the output shaft, no final drive takes place. As speed increases, however, the action of the centrifuge unit draws Socket Coupling 24 inwards and this, in turn, because of the inter-connecting link, transfer a similar movement to the other Socket Coupling Units. Thus Unit 10 is moved until Rod Sockets 13 engage with Double Arm Crank 12 which is fixed on the output shaft and a through drive in first gear is completed.

As speed further increases Socket Coupling 24 disengages with the large Grub Screw in Gear 23, thus disconnecting first gear, but, at the same time, the slot in Socket Coupling 7 engages with the Bolt in Collar 8 and, as Pinion 23 is in constant mesh with Gear Wheel 6, second gear comes into play. It sounds complicated, but it does work!

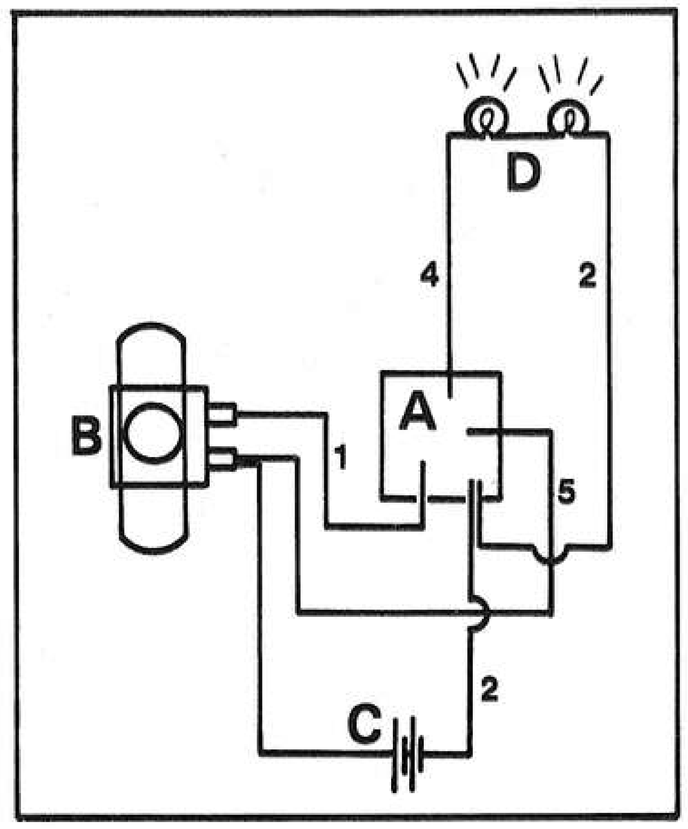
The following parts list applies to the demonstration unit illustrated here.

PARTS REQUIRED

2- 2	1-24	21-37b	1-69c
2- 6	1-25a	10-38	1-96
2- 8a	1-26	3-51	2-111d
1-14	1-26c	14-59	2-120b
1-15a	1-27	1-62b	2-126a
1-15b	1-27a	5-63	1-140
1-16	1-27d	4-63d	3-171
4-17	22-37a	5-69b	2-179
4-18b			

AUTOMATIC HEADLAMPS

The problem with featuring Michael Edwards' Automatic Gearbox, of course, is that, because of it's complexity, it's description has used up most of the space at my disposal! However, I have just enough room left for one more item and so, to stay with both the 'automatic' theme and motor vehicle mechanisms, I draw your attention to the circuit diagram reproduced here. This gives all the information required to produce an extremely novel Automatic Headlamp Control System and full credit for the idea goes to Mr. Michael Walker of Darwen, Lancs.



Wiring diagram showing method of using Electronic Control Set components for an Automatic Lighting System for a model car, suggested by Mr. Michael Walker of Darwen, Lancs A = Relay; B = Photo Cell; C = 12 volt D.C. power source; D = headlamps (a x 12v or 2 x 6v). Numbers indicate Relay sockets to which leads are connected.

The circuit requires the use of an Electronic Control Set and, to quote Mr. Walker, "The action is this: the vehicle is built and the headlamps and switchgear installed. The Photo Cell is mounted in a forward position on the car and receives sufficient daylight to keep the Relay circuit to the headlamps 'broken' and thus the headlamps remain switched off. When the model moves into darkness (under a tunnel, or when night falls), the lack of light on the Photo Cell causes the relay to trigger the headlamp circuit and thus the lights switch on. When the lighting conditions improve, the action is reversed and the headlamps are automatically extinguished. For the convenience of assembly, only one 12 volt power source is required and even this can be tapped from the main supply to the car".

Perhaps one of the more underrated accessory outfits in the Mecanco System, the Electronic Control Set in fact adds considerable scope to Meccano modelling. Michael Walkers' design helps to prove the truth of this statement.

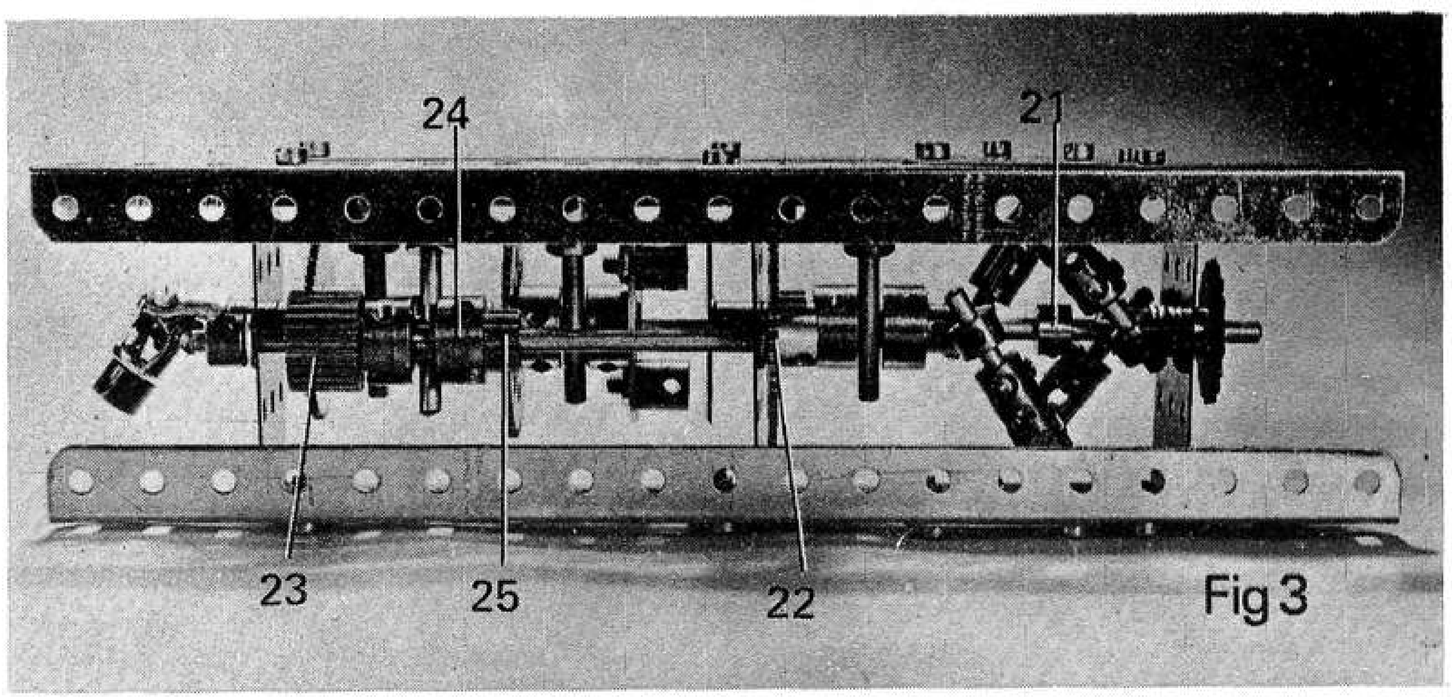


Fig 3

FOOD FOR THOUGHT

Are non-Meccano parts acceptable in a Meccano model? BERT LOVE has some thoughts on the subject prompted by Mike Nicholls' article in the last MMQ. . .

In closing his article with the words "What say you?" (Meccano Miscellany October 1974 MMQ) Mike Nicholls was obviously tossing a bone of contention into the pool of controversy. It would be so easy to swallow the challenge, hook, line and sinker, but as an 'older hand' I have been swimming round this bait before replying.

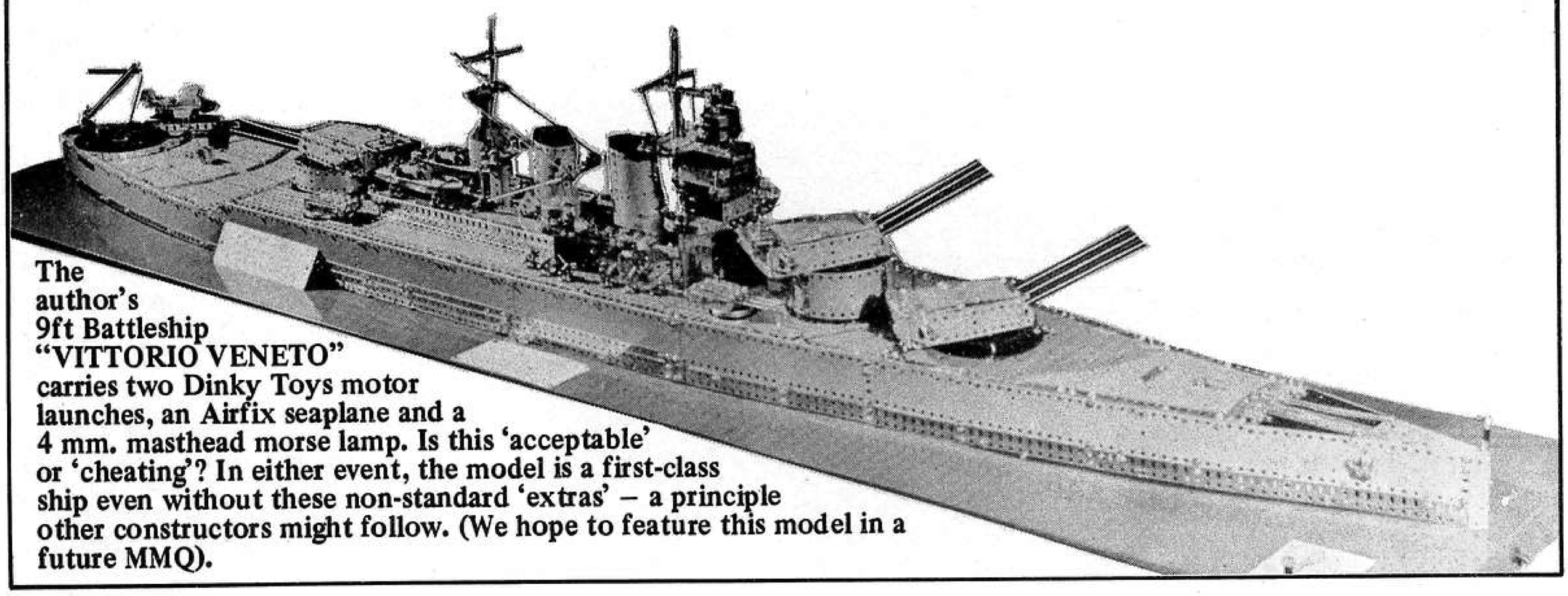
Perhaps one answer to the question "What is the objection to using non-standard parts?" is: "Because the non-standard part can be objectionable in itself". To take a leaf out of Mike's book by quoting the 1974 Henley Meccano Exhibition, an outstanding model of a Deltic Locomotive drew gasps of admiration from the visitors because of its fine detail work and overall appearance. Concentric wheel springs, ventilator louvres and internal cab details were all beautifully modelled in standard parts, but the spherical contour of the external cab fairings owed their elegance to a plastic float from a ball-cock cistern! This was so well done that it was completely unobtrusive. By comparison, a nearby model of an almost life-size radar scanner utilised a large area of wire netting for effect which promoted the comment from an experienced constructor "What do you think of the revolving chicken coop?" (his words – not mine!).

At this stage I suppose I ought to put my cards on the table and say that the constructor who produces a reliable, sophisticated and elegant model using entirely standard parts will always have my respect and admiration – provided, of course, that he does not adopt a "holier than thou" attitude. Similarly, if you have produced a model which gives you real pleasure, but incorporates a small, non-standard embellishment, you should not be too easily offended by the pointing finger which asks parsimoniously "And what part number is this one?". On the other hand, if your model looks like a refugee from a scrap yard then you deserve all the ribbing you get if you are seriously proposing to show it at a *Meccano* (so named) exhibition!

I must protest strongly at any comparison with the tactics or methods used by the Model Room at Binns Road and those of the ordinary Meccano constructor – their aims and limitations are quite different. Once a model leaves the Meccano factory, it must arrive at the dealer's shop in a 100% working condition, without time, or expert, on hand to make last minute adjustments, repairs or assembly as is the invariable custom at Meccano Club meetings. This is the reason why the Model Room at Liverpool drill that extra hole, fit a bigger boss, make a non-standard part, bend a Strip, cut an Angle Girder or make a 24" Axle Rod! They have the reputation of the company at stake in terms of reliable performance and, when one considers that the dealers' models are often run continuously night and day throughout a Christmas season, then are trotted out the following year with no maintenance or a fatal flooding in gear-oil by a well-meaning shop assistant, then the average constructor has an easy task by comparison. It's really all a matter of keeping things in perspective, isn't it?

However, there are, in my opinion (and isn't it often just a matter of opinion?), too many models displayed which are bristling with bric-a-brac and, frankly, quite spoiled for the lack of a little thought. Even a cursory inspection of the list of Meccano parts now available through the standard range, the Multikit sets and the Clock Kits, not to mention the Electrical parts, give the Meccano modeller a range of constructional parts unequalled by any other modelling system in the world to-day.

My plea is that the modeller should do a little more thinking about using the conventional part in a non-conventional role (this is the great secret in reaching up to the standards of the leading Meccano modellers who produce such realism *and* performance by exploiting standard parts to the utmost) before falling for the temptation to take the easy way out by carving up, daubing paint and grabbing the nearest lump of plastic off-cut to bodge up the job. If a constructor has to mutilate parts to build his model he might as well take up tinplate work. On the other hand, if his Meccano modelling becomes a discipline instead of a joy then the sooner he gives it up the better!

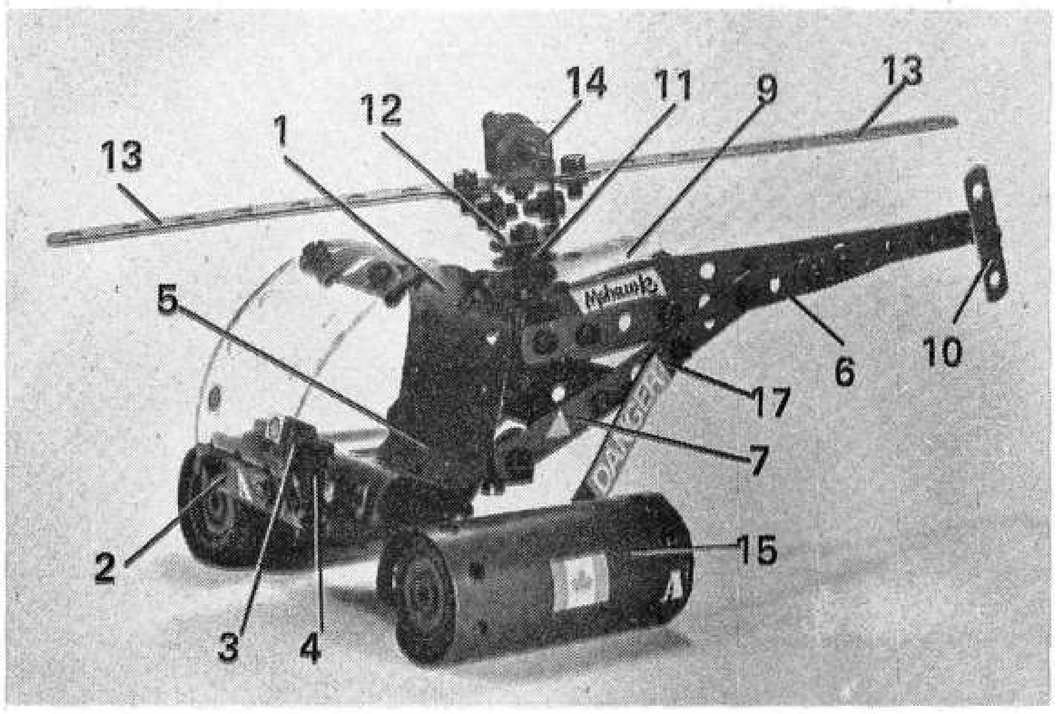


The author's 9ft Battleship "VITTORIO VENETO" carries two Dinky Toys motor launches, an Airfix seaplane and a 4 mm. masthead morse lamp. Is this 'acceptable' or 'cheating'? In either event, the model is a first-class ship even without these non-standard 'extras' – a principle other constructors might follow. (We hope to feature this model in a future MMQ).

COMBAT HELICOPTER

by Spanner

A study in realism from the new Meccano Multikit



IN HIS front cover pre-view of the soon-to-arrive Meccano Combat Multikit, our Editor comments on the remarkable realism of the models featured in the Combat Manual. I echo his sentiments! Considering their comparative simplicity, the models are outstandingly life-like and reflect great credit on their designer, Mr. Ray Iddon, the Company's Meccano Model Development Manager, aided by Mr. Dave Gunstone, his assistant. To illustrate the realism, we feature here an Army Helicopter – one of the nine models appearing in the Combat Manual – and my only regret is that the photographs cannot do it full justice.

Construction is quite straightforward. The cabin consists of a 5½" x 1½" Flexible Plate 1, curved to shape, with the ends bolted to a 2½" x 1½" Transparent Plastic Plate serving as the window. The lower joint is overlaid by a 1½" Narrow Strip 2 (a new part) outside the cabin, while the same securing Bolts also fix a Double Bent Strip 3 in place inside the cabin to represent the instrument panel. The control columns are supplied by two ¾" Bolts 4 held by Nuts in Flexible Plate 1, while the seat is a 2½" x 1½" Flexible Plate 5 curved to shape and also bolted to Flexible Plate 1 in the position shown.

Equally simple in design is the fuselage, each side of which is supplied by a 6½" compound narrow strip 6, built up from a 4½" and a 3" Narrow Strip, to the forward end of which an Angle Bracket is bolted. The spare lug of this Angle Bracket is bolted in turn to an Obtuse Angle Bracket secured to the top back of the cabin. Compound strip 6 is braced by a 3½" Narrow strip 7, positioned as shown, the forward end of which is also attached to the back of the cabin by an Angle Bracket bolted to an Obtuse Angle Bracket. These Narrow Strips at each side are connected by a Double Bent Strip 8, attached to the Strips by Angle Brackets, while the compound strips at each side are also connected together, in this case by a 2½" x 1½" Flexible Plate 9. Further back, the compound strips are angled towards each other and are fixed together by a Bolt passed through the second holes of the strips. Fixed in the rear holes of the strips is a ½" Bolt on which a 1½" Narrow Strip 10, free to revolve, is held by lock-nutted Bolts to serve as the tail rotor.

Revolving in the centre hole of Double Bent Strip 8 and in the corresponding hole of Flexible Plate 9 is a 2" Screwed Rod which is prevented from sliding in its bearings by two sets of lock-nuts, one each side of the Double Bent Strip. Fixed by Nuts on the other end of the Screwed Rod is a ½" Pulley 11 and a Double Bracket 12 and attached by Angle Brackets to the lugs of this Double Bracket are two 4½" Narrow Strips 13 representing the main rotor. The Bolt fixing the two Narrow Strips together in the centre of the Rotor also holds a Double Bracket 14, to each lug of which a ¾" Bolt is locked by Nuts, as shown.

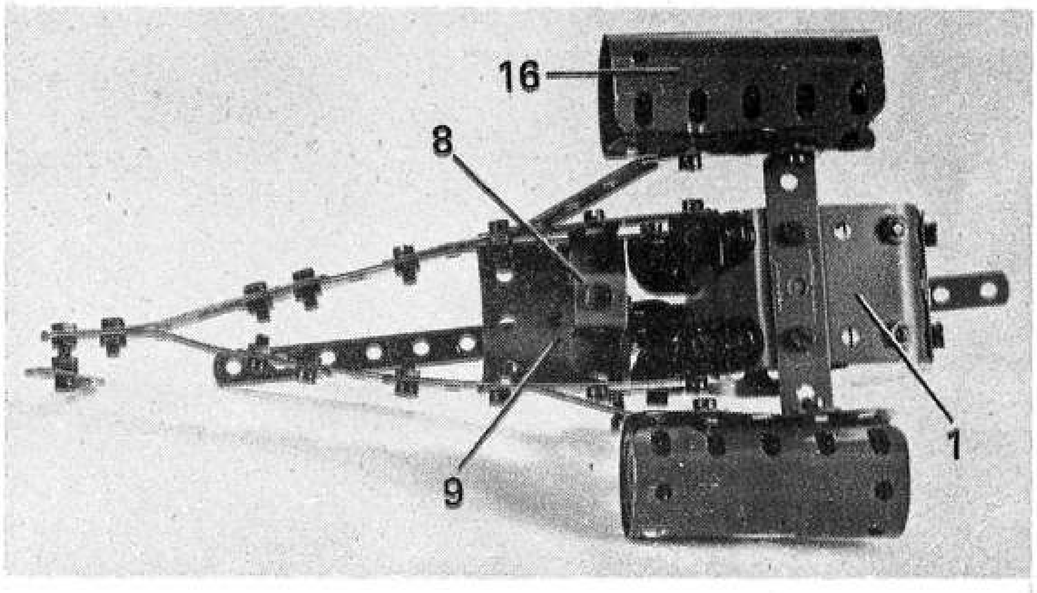
Turning finally to the undercarriage, this is fitted with large imitation floats, rather than with wheels. Each float consists quite simply of a 2½" x 2½" Flexible Plate 15, curved to a cylindrical shape, and bolted to a lug of a 2½" x ½" Double Angle Strips 16 fixed to the underside of Flexible Plate 1. A bracing strut between the float and the fuselage is provided by a 3" Narrow Strip 17, curved to shape, then the ends of the float are enclosed by ½" Pulleys, fitted with Dinky Toy Tyre No. 093, and wedged in the ends of the float cylinders. (This tyre, incidentally, now available as a standard Dinky spare will be included in the Combat Multikit as a 'new' Meccano Part (No. 452). The present tyre is a tight fit on the Meccano Pulley, however, and should first be immersed in hot water to soften it; the new Meccano version will be made from a softer material to allow easy fitting.)

Finally appropriate vinyl stickers from the sheet which will be supplied with the kit are added, in appropriate positions, to nicely round off a beautiful model. In the following Parts List, by the way, we list standard part numbers, although the Multikit parts have their own numbering system.

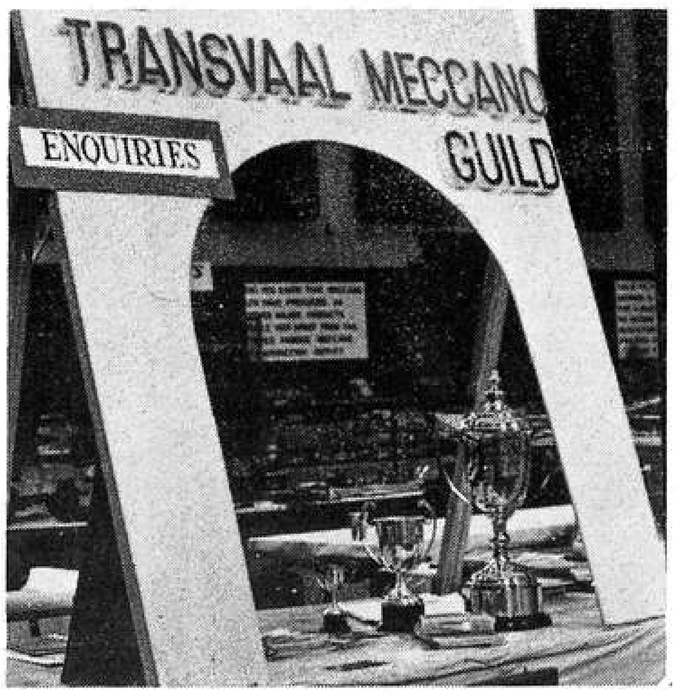
PARTS REQUIRED

2-11	66-37c	1-81	2-190
8-12	(Hex	4-111	1-193
4-12c	Nut)	1-111a	4-235a
5-23	1-45	2-188	2-235b
46-37b	1-48a	1-189	4-235d

2-445 (1½" Narrow Strip)
1 Dinky Toys Tyre No. 093



Above, a general view of the Combat Helicopter built with the brand new Meccano Combat Multikit. As nearly all the components in the set are standard parts, this realistic model could, with slight modification, be produced from existing parts. Right, an underside view of the model showing undercarriage construction.



SOUTH AFRICAN SPECTACULAR

Rand Hobbies Fair review by the Editor from a report by PETER MATTHEWS

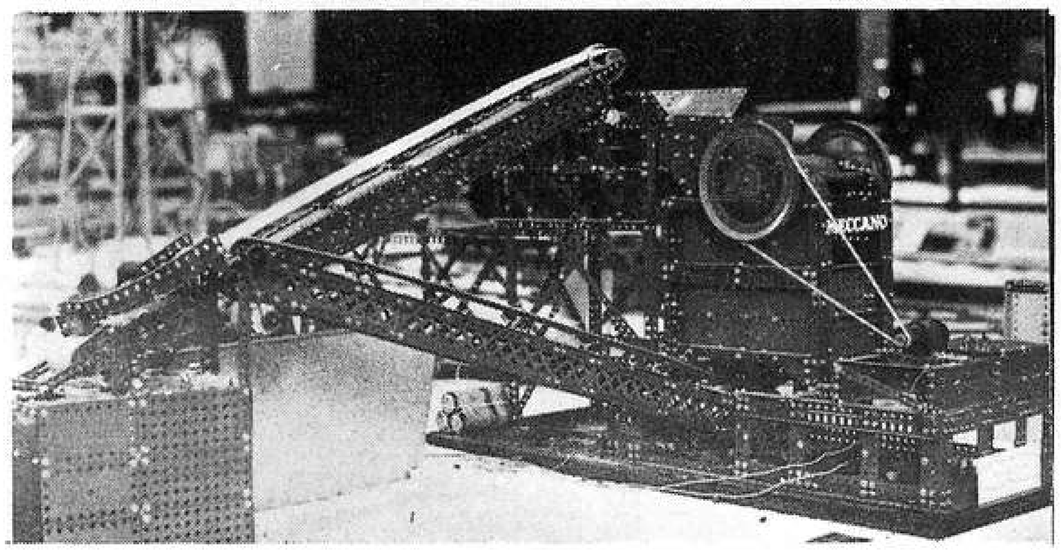
EARLY IN AUTUMN, while modellers in Britain were winding down after the rigours of the British Exhibition season, members of the Transvaal Meccano Guild and Cape Town Meccano Club in South Africa were working up to the most spectacular Meccano display ever mounted outside this Country – the Meccano Exhibition held at the Rand Hobbies Fair in Johannesburg City Hall from 21st to 28th September last. In many ways the exhibition was a record-breaker; it ran for *seven* days (the first non-company exhibition to run so long) it attracted *25,000* visitors and netted the Award for the most meritorious exhibit in the entire Fair. No less than 154 models were on show – a staggering number considering that only two clubs were involved!

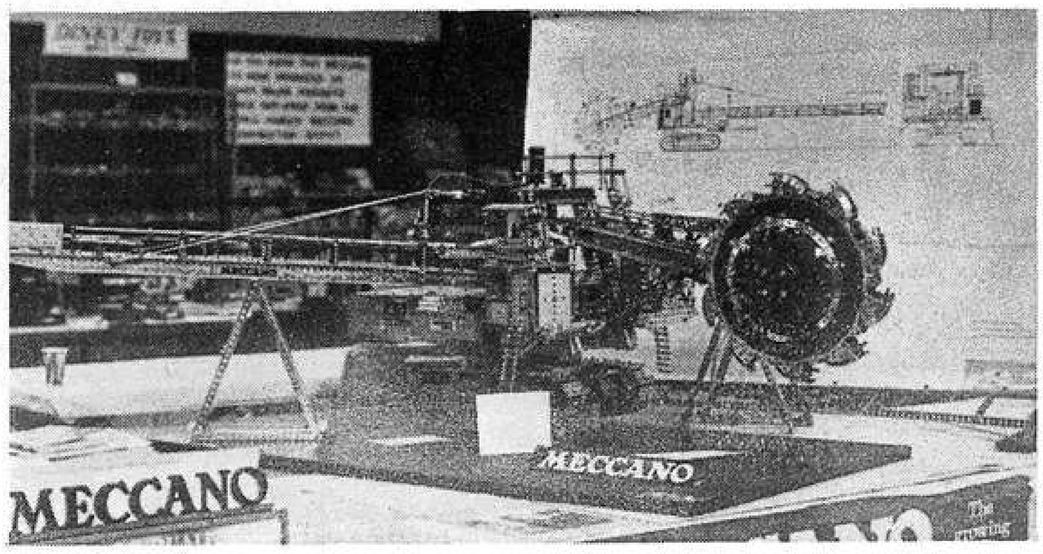
With so many models on show, of course, it is impossible to describe them all here and I am sure exhibitors will fogrive me for not doing so. However, it is clear from the fully-detailed report supplied by Peter Matthews of the Transvaal M.G. that there was something for everyone: traction engines, motor vehicles, aircraft, bridges, towers, machinery – just about anything you can think of! Peter tells us that a large 'Fun Land' display of fairground models proved a big success and a particular attraction for the children. He also gives separate mention of the railway layouts of Pierre Marais and Japp Kies. "Jap's Layout", he says, "Consisted of various types of rolling stock hauled by diesel and steam outline locomotives running on a centre rail pick-up track constructed by removing Hornby rails from their sleepers and screwing them to boards at about 3" gauge. Pierre's layout, on the other hand, proved to be more satisfying to the purist because he had used genuine Hornby 'O' gauge electric track and built his locomotives to this gauge – not an easy thing to do." In both cases, of course, the rolling stock and locomotives were built from Meccano.

One model which I take it upon myself to single out for mention was a Giant Cole's Lorry-mounted Tower Crane built by Charles Roth. From the general description Charles himself has supplied, this must surely be the largest Meccano model ever produced outside of a Meccano factory. Built onto a 28-wheeled Coles 250 ton chassis – itself with an overall length of 6ft. 3in. – the crane tower shoots up to a height of no less than 24 feet! Weighing somewhere between 500 lb and 600 lb, it is powered by ten electric motors and took Charles an estimated 1,500 hours to produce. Quite understandably, the model was given pride of place at the Exhibition, in the front centre of the hall. Regrettably, I do not have the space here to pass on the remainder of the details Charles has supplied, but I hope to include a little more information in the next MMQ. One thing is certain, though – the model will stick in my memory for a long time to come.

Although Peter Matthews does not mention it in his report, I know that he, himself, deserves the major share of the credit, not only for the planning and organisation of the Exhibition, but also for providing an outstanding personal display. As readers of the old M.M. may remember, before Peter moved out to South Africa from Sussex, he built up a tremendous Meccano Museum which he shifted lock, stock and barrel to his new country and which he has continued to expand to the point where he now has undoubtedly the most comprehensive collection of *all* Meccano Limited products ever manufactured. Judging by the report, Peter must have had practically his whole museum on show at the Exhibition! The history of the Meccano product must have been praticularly interesting as he split the full 70 years history into recognisable 'periods' (the Nickel period, the Blue and Gold period, etc.,), tastefully displaying each period in its own

A. Top of page, the Transvaal M.G's. enquiry stand at the Rand Hobbies Fair, complete with Trophies – right to left, B. the Hector Falconer Floating Trohpy, the Regal Cup and the Cape Town M.C. Cup. Below left, model of an Ore & Crusher by Sandy Arbuckle. Below right, the Bucket Wheel Excavator by Bill Steele which netted all of the major C. Meccano Awards at the Exhibition.





'booth'. It is an extremely effective and interesting way, not only of displaying the full history of a famous product, but also of illustrating how, despite its long history, it has remained a 'living' product by constant change.

But, to move on, setting-up and manning an exhibition of the size and length-in-time of the Rand show calls for a tremendous amount of hard work by willing exhibitors, and every single person involved is to be congratulated. And, before the start of such a show (or, indeed, *any* show), there is always the big question – will it be a success? With a 25,000 attendance figure, the Rand show undoubtedly was a success and I now quote from Peter's report to give an idea of how things went:

"The Exhibition went very smoothly with much interest being shown by the public. On Saturday morning we were visited by Mr. E. Silberman, Managing Director of Regal Trading Company Ltd., sole distributers for Meccano products in South Africa.

"The first big rush came at about 3.00 p.m. (on the opening day, 21st September) when the Mayor of Johannesburg officially opened the Rand Hobbies Fair. At about 3.30 p.m. the Mayor and his party visited the Meccano Exhibition. I conducted the Mayor on a lightening tour of the Exhibition and he expressed delight at all the wonderful models on display ... Other days passed with the usual repair work and questions from the public.

"On the following Friday evening Mr and Mrs Silberman and their daughter visited the show, as Mr. Silberman still had to judge which model should receive the 'Meccano Cup' presented by Regal Trading for the best model of the show. This cup is 'floating' and is to be presented each year. Mr. Silberman also had to place in order of merit first, second and third in both the Senior and Junior models. Regal Trading were to present 6 Meccano prizes for these winners.

"Saturday had at last arrived and, after 6 days of hot dogs, hamburgers, soup and sandwiches and 12 hours a day on my feet, I for one wasn't really sorry! .... Today was to be the day that more members than usual turn up and all the presentations take place. Mr. Silberman arrived on Saturday afternoon for the presentation of the Meccano Cup and Meccano prizes. We all assembled on stage amid great excitment to await the results. Mr. Silberman delivered a very nice speech in which he paid tribute to a chap known as 'Mr. Meccano' and all the members of the Transvaal Meccano Guild.

"The results were as follows:–

'The Meccano Cup' to Bill Steele for his Bucket Wheel Excavator.

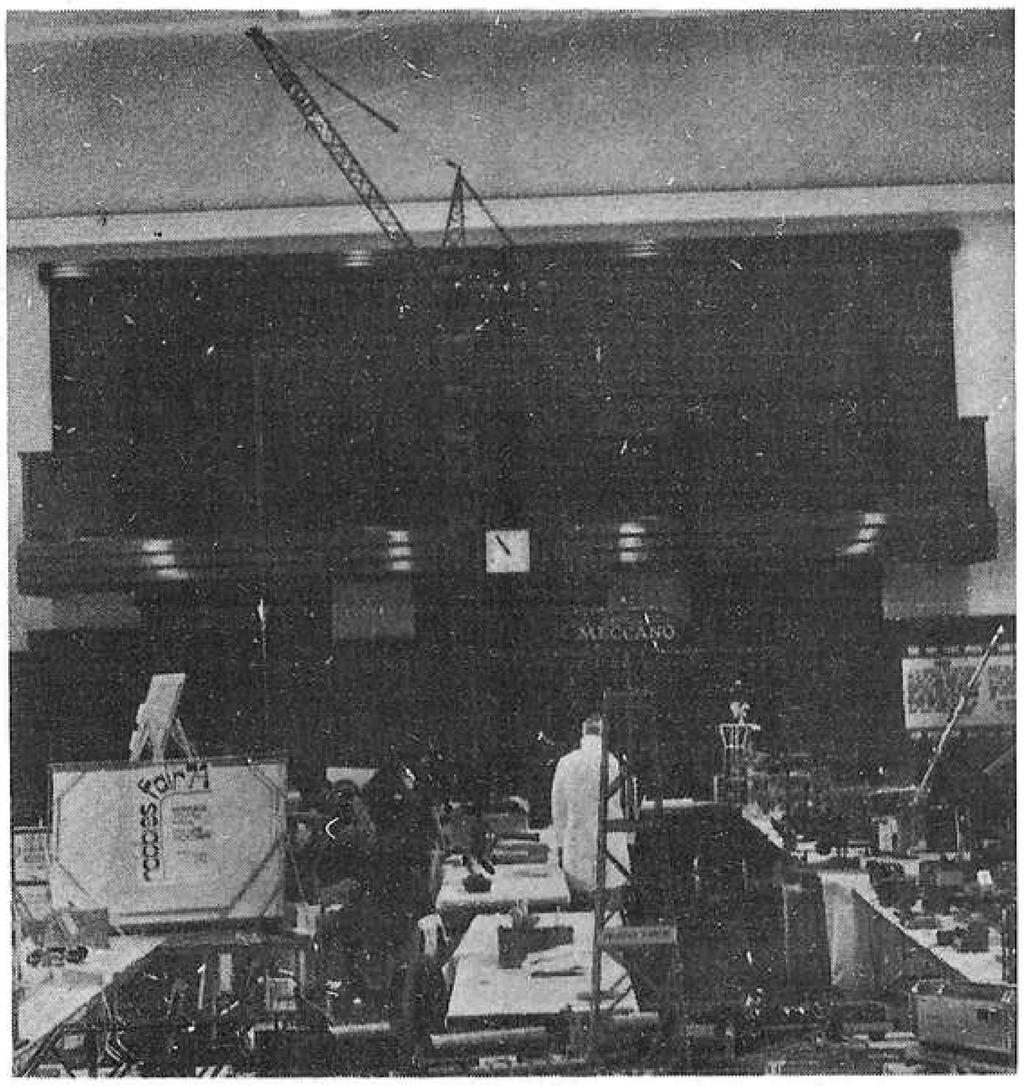
SENIOR SECTION

1st: 5ME Outfit	Bill Steele – Bucket Wheel Excavator.
2nd: No. 6 Outfit	Charles Roth – Giant Cole's Crane 250 ton
3rd: Electronic Outfit	Paul Hatty – Mini Clubman

JUNIOR SECTION

1st: Highway Multikit	Leslie Segal – Cole's Crane.
2nd: Clock Kit	Anthony Attwell – Cole's Crane.
3rd: 3X Outfit	Stephen Cornish – Tipper Lorry.

In addition to the prizes awarded by Regal Trading for the Meccano Exhibition, the organisers of the Hobbies Fair itself had their own awards to make throughout the Show as a whole, and Meccano exhibitors were certainly to the front in this area also. Between



A general view from the stage showing part of the Meccano Exhibition at the Rand Hobbies Fair in Johannesburg, South Africa. Regrettably, individual exhibits do not stand out too well in this illustration, but Charles Roth's 24 ft. high Coles Crane can be seen towering massively over all!

them, they received no less than seven Silver Medals, five Merit Awards and three Honorable Mentions!

"As if all these awards were not enough, the members of the Club ... still had to decide which model should be awarded the 'Cape Town Meccano Club Cup' for the best model of the show. Members were asked to write their selection on a piece of paper and place it in the ballot box ... The Cup was presented to Bill Steele for his Bucket Wheel Excavator.

"Last year the Guild won the 'Hector Falconer Floating Trophy' which is presented at each Hobbies Fair for the most meritorious exhibit of the entire Fair. We had had this on show of course all the week, and by 9 o' clock we were all anxious to know when the presentation was to be made. An enquiry at the Information Desk assured us that it would be soon. No sooner had I got back upstairs to the Exhibition than the announcement was made 'calling all the members down on to the stage'. This could only mean one thing – that we had done it again! Mr. Wiley, Chairman of the Rand Hobbies Fair, was on stage to present us with the trophy; I cannot remember all the nice things he said, but one thing did register and that was that, having seen our Exhibition last year, he was quite convinced that we couldn't do any better this year. However, he had to admit that this year's show was in his opinion outstanding and outshone last year. I received the trophy on behalf of the Transvaal Meccano Guild and it now stands back in place in the Meccano Museum."

On behalf of the MMQ,I would now like to extend our congratulations to all those who took part in the Exhibition at the Rand Hobbies Fair – exhibitors and helpers alike. Great credit is due to all, and not least to those inevitably over-worked individuals who slaved away before and after the event setting up and dismantling, shifting and carrying the seemingly endless exhibition paraphernalia. Well done everybody!

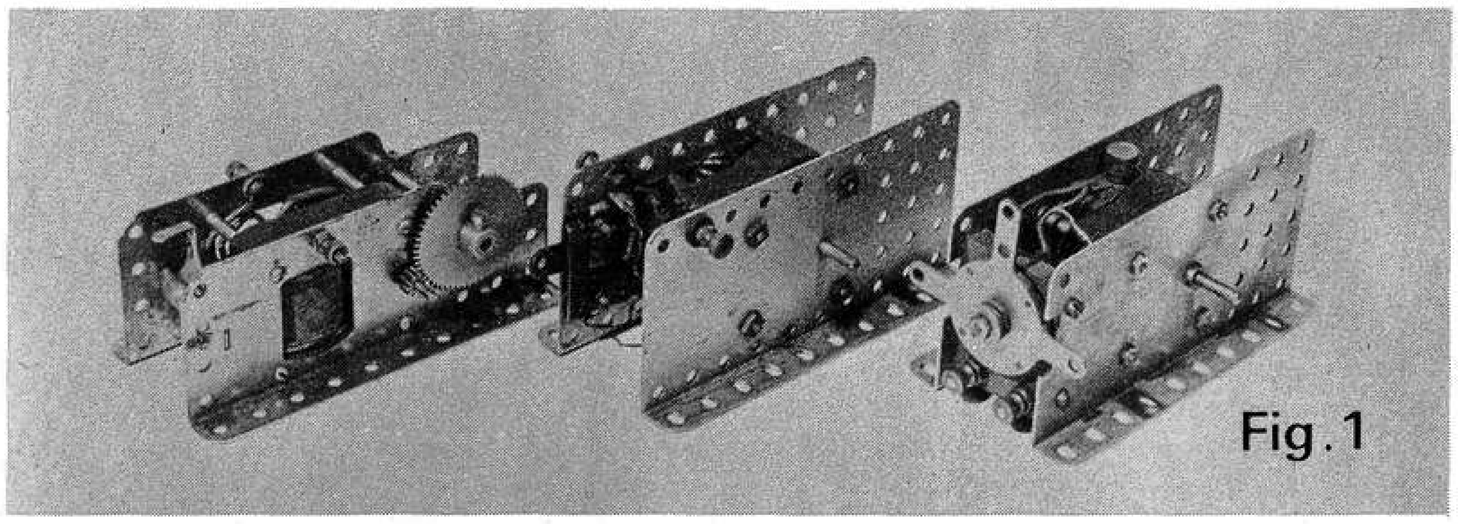


Fig.1

COLLECTORS' CORNER

B.N. Love looks at 60 years of .....

Meccano Electric Motors

AS LONG AGO as 1914 – way before the widespread use of electricity to light the homes of Britain – Meccano Limited were showing manual models driven by a mains electric motor. However, despite being all enclosed and mounted on a sturdy baseboard, this early motor did not get much further than the manual pages since very few suburban houses had mains electricity and those that did had a very healthy respect (if not fear) of anything plugged in to a 200 volt supply!

Nonetheless, there was a demand for a suitable driving unit and, although the clockwork motor was established by 1916, that same year saw the appearance of the 'original' sideplate electric motor, an example of which is illustrated here, to the left in Fig.1. It was available in two versions, non-reversing and reversing, and was advertised in issue No.1. of Meccano Magazine (September – October 1916) at 7/6 for the former and 10/- for the latter. The advertisement also mentioned running the motor from house mains via a transformer, but recommended a 4 volt accumulator for general use.

One peculiarity of the 'original' motor in Fig.1 is that the driving pinion is permanently attached to quite a narrow diameter armature shaft, but the illustrations of 1916, show a detachable, combined pinion/pulley fitted with a fine 6BA grub screw. The meshing gear has a standard boss and Set Screw on a 2½" Axle Rod, but the specimen shown has a fine hole drilled through the shaft at its centre for the attachment of a winding cord.

The 1916 Motor illustrated here was an American production, but Meccano historians are well aware of the anomalies which abound when it comes to pinning down dates and details. The early sideplate motor was still advertised in 1919, the price having gone up to 15/- for the reversing model and 10/- for the non-reversing. (Inflation is nothing new!)

At the beginning of the 1920's, the heavier sideplate motor made its debut and this is illustrated in the centre of Fig.1. It gave us the " 10-hole length" motor plate format which remained as a standard for some twenty years, providing a 5-hole x 3-hole perforated end section on which additional reduction gear could be mounted. So far, the sideplate motors were designed for 4 volt working. They drew quite a heavy current and were unsuitable for battery operation, but ran well from a lead/acid type accumulator.

A reversing lever can clearly be seen on the 1920 motor and it was fitted with a hole to facilitate the attachment of extended operating levers. Shortly after the introduction of this motor, a competitor won a major prize in a Meccano Model-building competition using the motor in a Travelling Gantry Crane. The Crane was judged such a fine model that it was adopted as one of the range of early Meccano Super Model Leaflets, but the illustrations always showed the original side lever motor years after it went out of production.

Fig. 1 (above), three nickel-plated Meccano Electric Motors from 1916 – 1935. All were reversing, but had 'one-sided' armature shafts. Fig. 2 (below), the popular long-sideplate 20 volt motors of the 30's with the smaller non-reversing E120 Motor. Note special combined pinion/pulley on the E120.

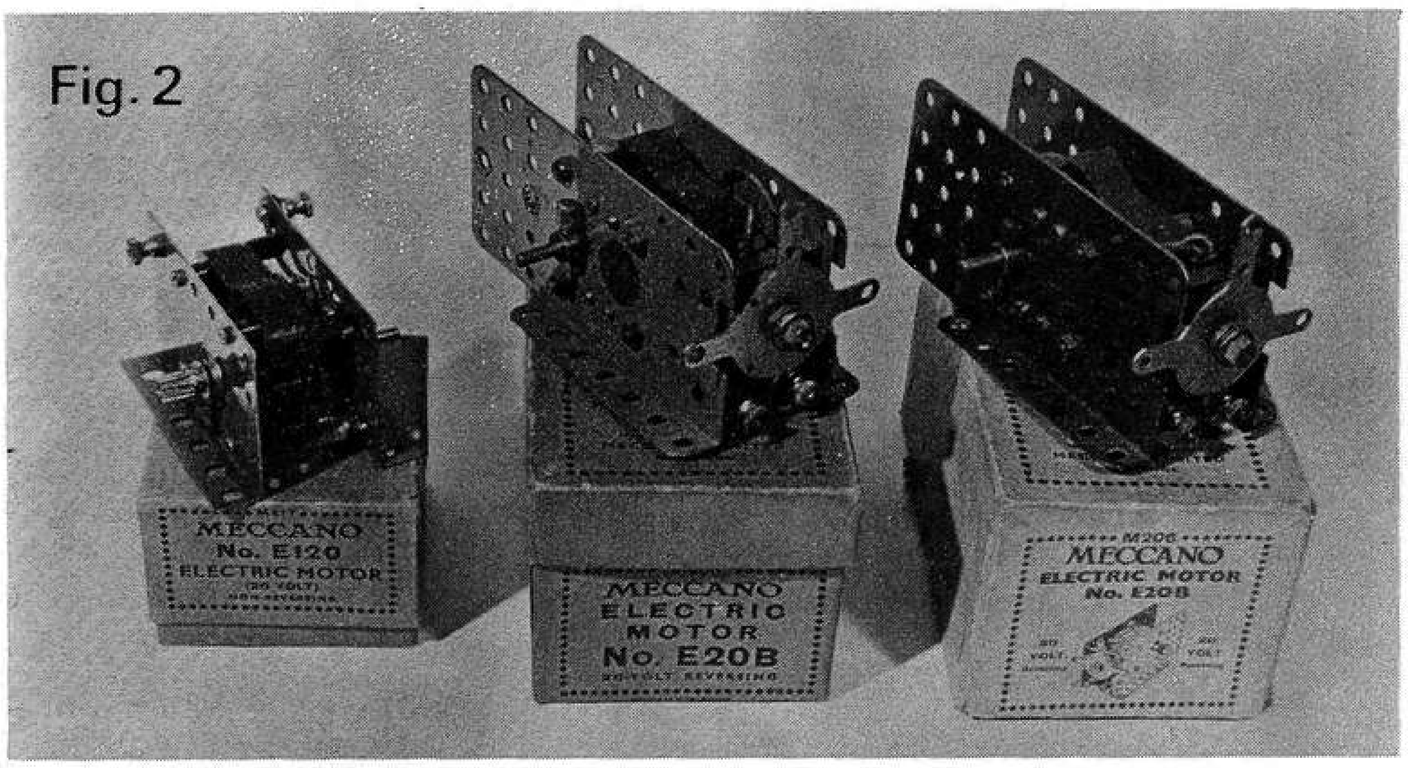


Fig. 2

All three motors shown in Fig.1. were nickel plated, including the right-hand motor which has all the hallmarks of the present day Meccano E15R, but this right-hand motor was also something of an anomaly. Appearing about 1925, it reverted to an 'end on' reversing switch, but with a more versatile lever, and it can be clearly seen that the brass cap of the upper carbon brush is internal. Both of the earlier nickel motors shown had external brush holders screwed at right angles into the off-side motor plate.

All three nickel motors had one common drawback: the armature shaft extended on one side only and was flush on the other. As the Super Model era opened up, this was found to be a nuisance and, with the introduction of coloured Meccano in 1926, the last nickel

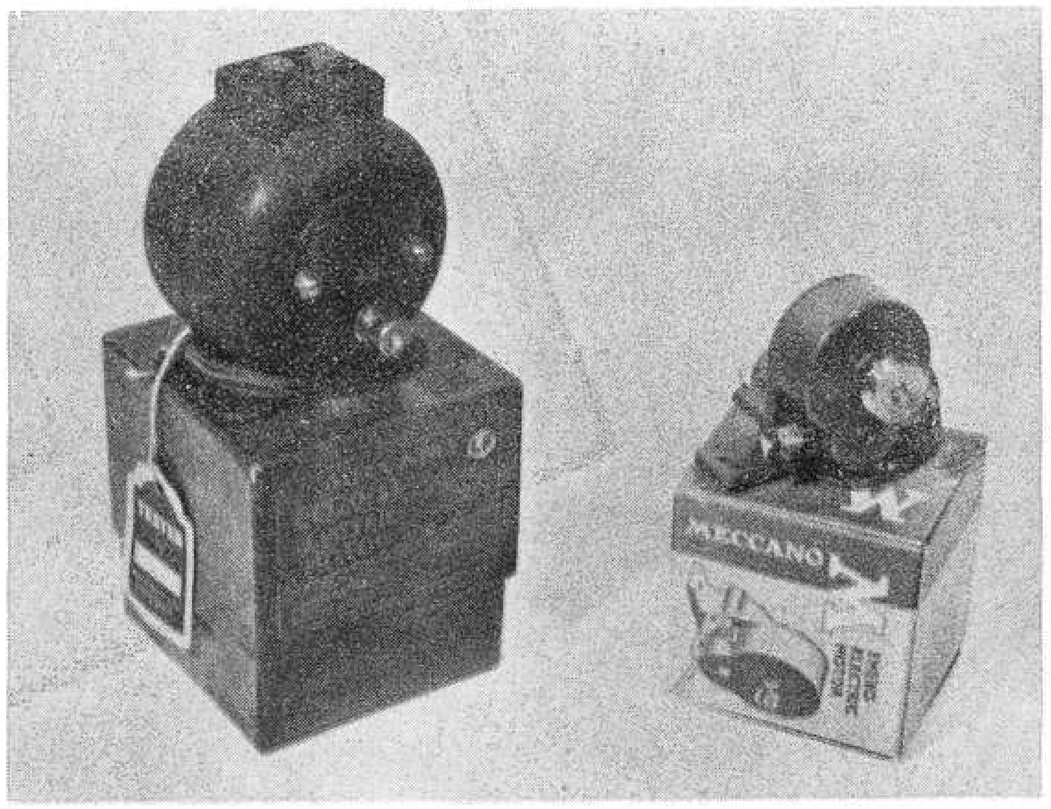
motors were phased out and the red 4 volt Meccano Electric Motor introduced. This was almost identical in appearance to the right-hand motor of Fig.1, but was fitted with an armature shaft protruding from both sideplates.

In passing, it should be mentioned that a similar-size Meccano electric motor was marketed for direct working from the mains, A.C. or D.C., 100 – 250 volt, and what was quite staggering for the period (1925-26) was the fact that the brushes and commutator were external and exposed! Consequently, such a motor had lethal potential and although I have never heard of a fatality from its use, the motor was not-surprisingly withdrawn bef[illegible] the end of the decade.

By 1928, the Meccano Electric Motor was upgraded to 6 volts and supplied with a transformer in the No.7 Outfit (the "millionaire's outfit" of my boyhood!), but simple brass brushes were always used for armature bearings. As the installation of the 240 volt A.C. grid extended across Great Britain throughout the 1930's, the use of transformers became very popular, not only because of their convenience, but also because they allowed greater output versatility. Taking advantage of this versatility, the 20 volt motor range was introduced to give more power for heavier models and remained throughout the decade as illustrated in Fig.2. On the right-hand side is the 1934 E20B Motor and the heavier brass bearings fitted with grease-cups are clearly seen. This particular sample is in red, but its neighbour, in the centre, is in blue with a slight change in carton. Meccano 'original boxes' have always been manufactured to a very high standard and thousands of them survive after more than half a century. However, by 1940, war time restrictions on raw materials demanded less cardboard so the shallow lid on the box of the centre (1940) E20B was one result.

In 1938, Meccano Ltd. had an economy campaign by reducing the contents – and price – of the then largest Blue and Gold outfit, the 'L' Set, and marketing it in the form of the No.10 Outfit which has changed little since that time. They did include the third motor shown in Fig. 2, however, the very 'cheap' non-reversing E120 Electric Motor. The example illustrated is a 1939 product, but it was around at an earlier stage for the well-known 1936 Meccano Super Model Leaflet 1a – the Bentley Motor Chassis. Readers will note that a combined Pinion/Pulley is supplied with this motor (shades of 1916!) and this is because the reduced sideplates (4 holes x 6 holes) just did not give enough room for meshing a 57t Gear Wheel with a standard 19t Pinion. Again, this special pulley had a 6BA grub screw because of the reduced bulk of brassware involved. Things remained thus until the second world war stopped Meccano production at Binns Road.

By 1949, a new Electric Motor was marketed, known as the E20R – 'electric, 20 volt, reversing' – together with a suitable 20 volt transformer. Its general appearance was similar to that of the left-hand illustration in Fig.4 and it will be seen that the sideplates are drastically reduced from those of the 1930's type. This had the advantage of being more compact for building inside a model and certainly saved on steel, but it had the definite disadvantage of having no extensions for adding on a gear reduction train without bolting on additional plating. Concurrently with its introduction, the B.B.C.'s television service was spreading rapidly in the London and Midland areas and there were many complaints about all kinds of model electric motors causing television interference. The E20R was no exception and was replaced in the early '50's by the E20R (S) – the S



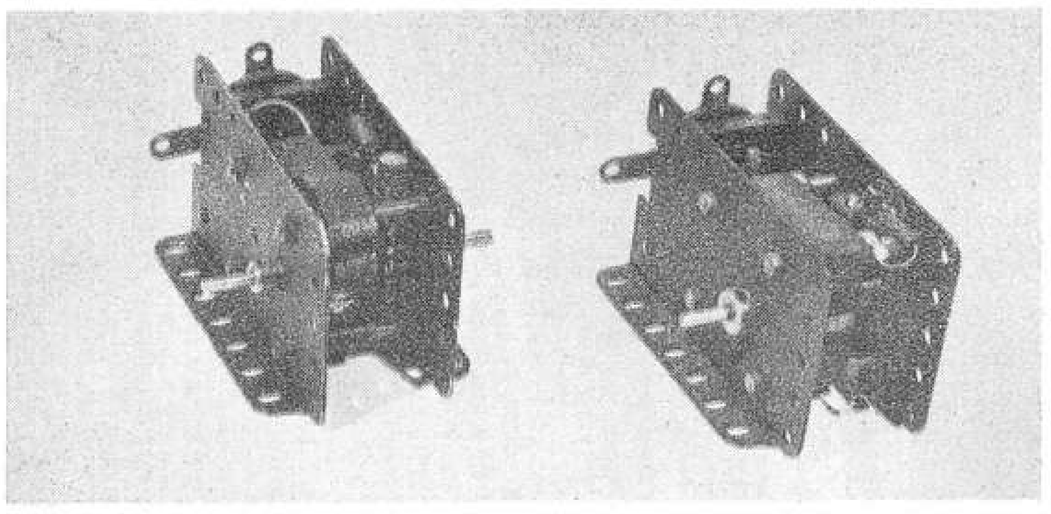


Fig. 3, the E020(S) "cricket ball" non-reversing 20 volt Motor on the left, with the 4-6 volt D.C. "Emebo" Motor on the right. Fig. 4, post-war Motors E20R on the left and the present-day E15R on the right. Note difference in brush gear, laminations and armature bearings.

standing for "Suppressed". This motor is the one illustrated in Fig. 4, left-hand side, and the upper suppressor capacitor can be seen attached to the top brush holder.

In the meantime, another 20 volt motor appeared (or re-appeared) on the scene and this is the "cricket ball" motor known as the EO20. It had been available just pre-war in 6 volt and 20 volt versions and in various colours, but it was now supplied in black crackle finish, as was the E20R, and by the early 50's was also suppressed. Such a version, the EO20 (S) is shown in Fig. 3 complete with its original box marked LF (lead-free). This was done to comply with government requirements in the toy trade concerning lead-free paint in the hands of children. Although neat in appearance, the "cricket ball" was underpowered and suitable only for the lighter models. It, too, had a special pulley – probably the smallest pulley with boss ever made by Meccano Limited and beautifully nickel-plated.

In the second half of the 1950's two more Meccano Electric Motors appeared on the scene. The E20R was replaced by the E15R, shown on the right of Fig. 4. Its windings were modified to run from 15 – 20 volts and its laminated field core was re-shaped to the 'square' format shown (compare with E20R). Brushes were simpler and the brass bearings for the armature shaft were increased in diameter and supplied with a hole for lubrication, but the pre-war Grease Cups never re-appeared. The sideplate motors tended to be noisy, but this was often due to lack of lubrication, or badly set-up gear trains required to get the power output for particular models.

Continued on Page 21

TABLE-TOP BLOCK-SETTER

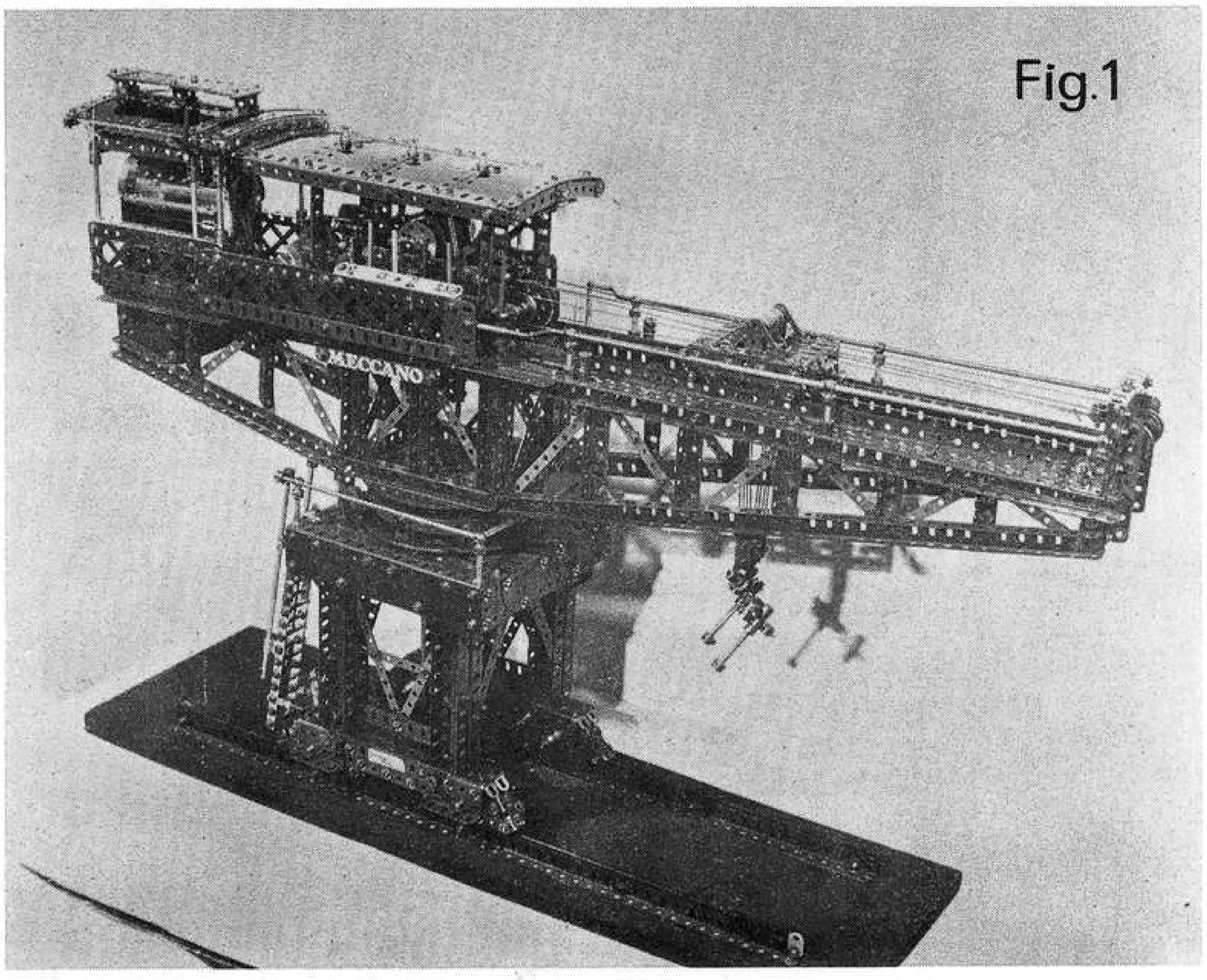


Fig.1

The superb steam-driven Crane with which MICHAEL MARTIN won the Meccano Cup at the 1974 Model Engineer Exhibition.

VISIT ANY Meccano Exhibition and the chances are you will spot at least one Giant Block-setting Crane. In fact, some of them are like old soldiers – they never die and hardly ever fade away!

One of the drawbacks of such giants, however, is the abnormal amount of space they take up in the home and this is something which MICHAEL MARTIN – MMQ reader and advanced modeller of long-standing – had very much in mind when he settled down to build a new Block-setter of his own. The result was the superb 'table-top' model illustrated here. The table-top description, however, should not be misunderstood; although smaller than some other Block-setting Cranes that have been built in the past, Michael's version is still a large and advanced model of excellent detail and proportion. Indeed, so good is it that it

Fig. 1 (above), the finished Block-setter by Michael Martin. All motions work from a single Steam Engine. Fig. 2, close-up of gearbox. Fig. 3, mid-section of crane gantry showing the four operating levers.

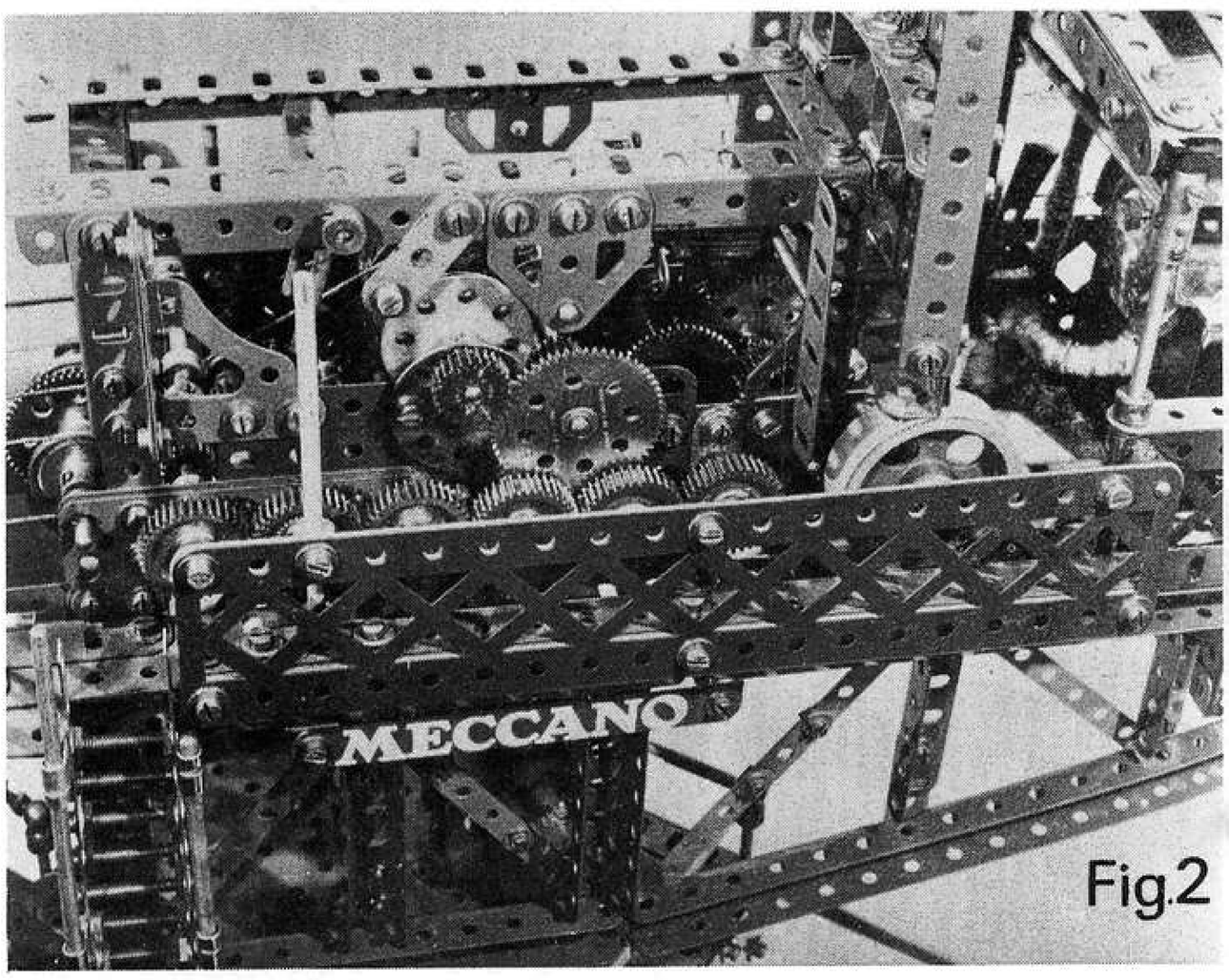


Fig.2

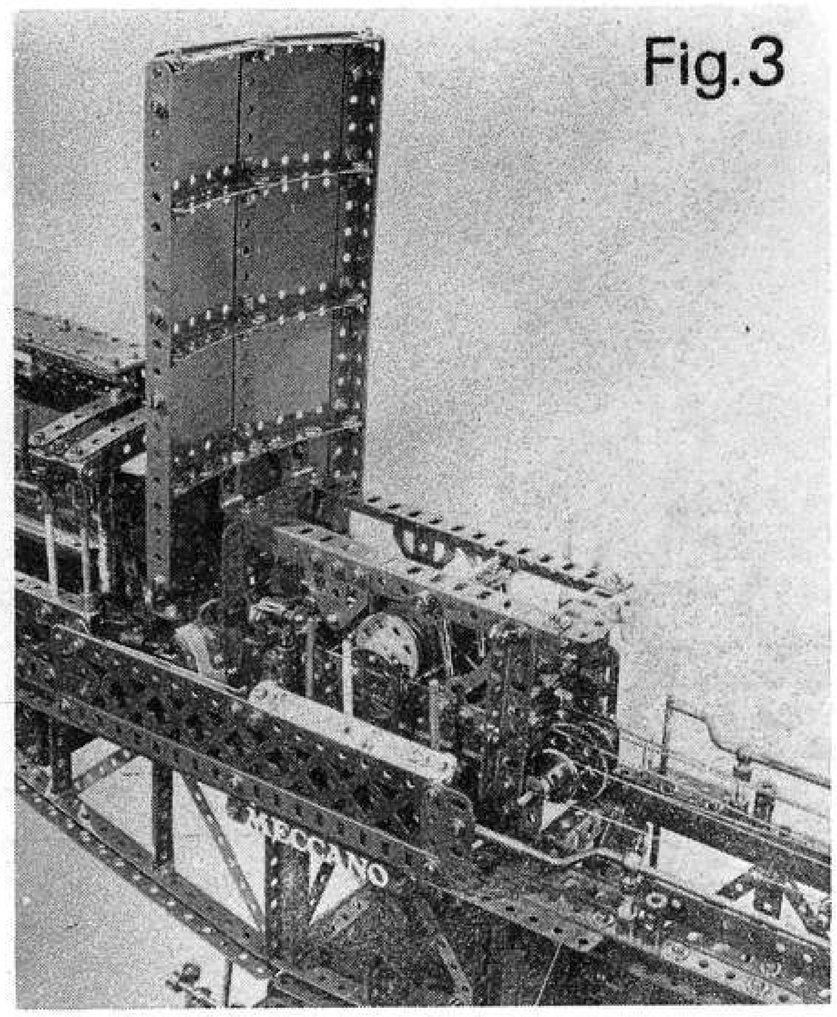


Fig.3

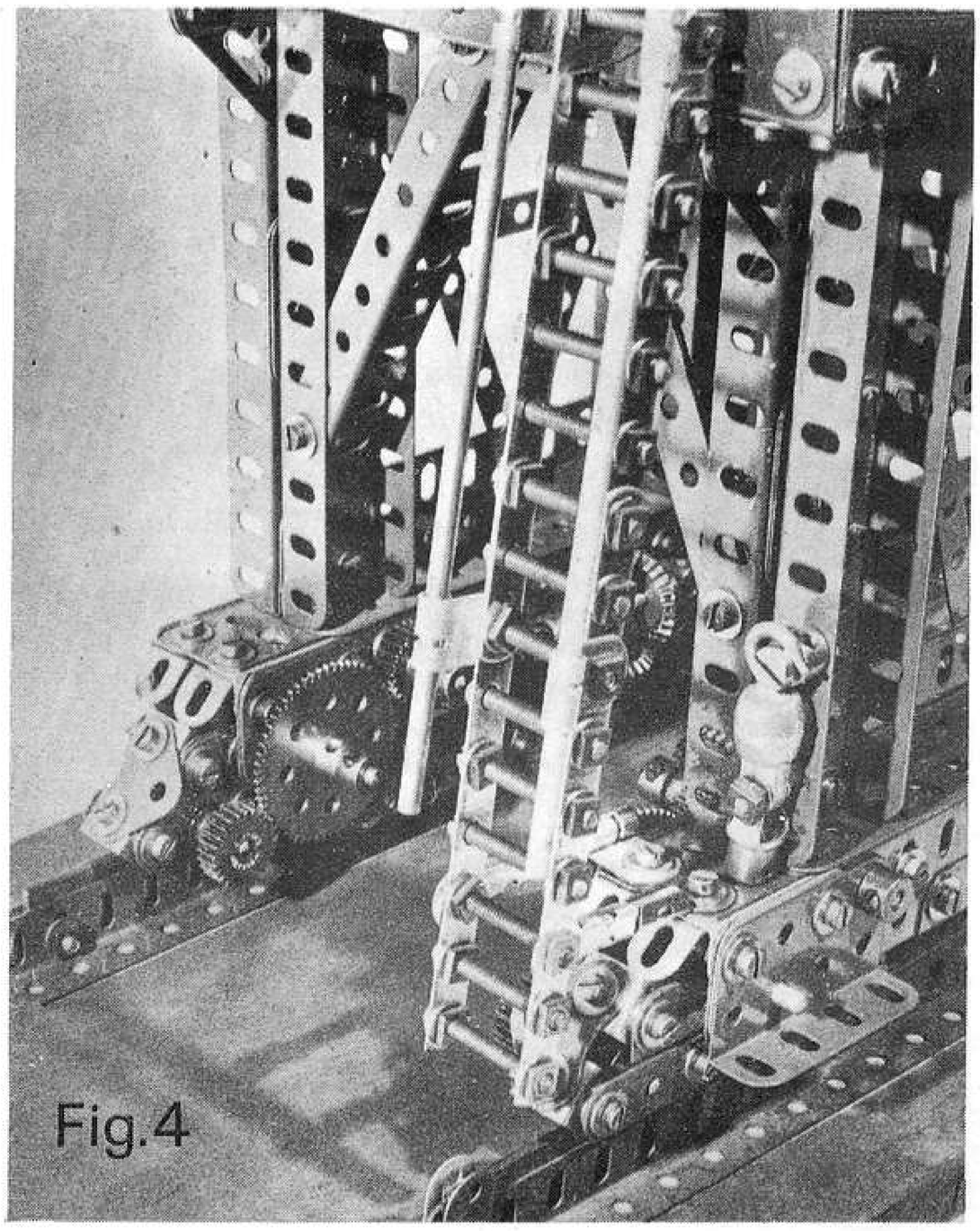


Fig.4

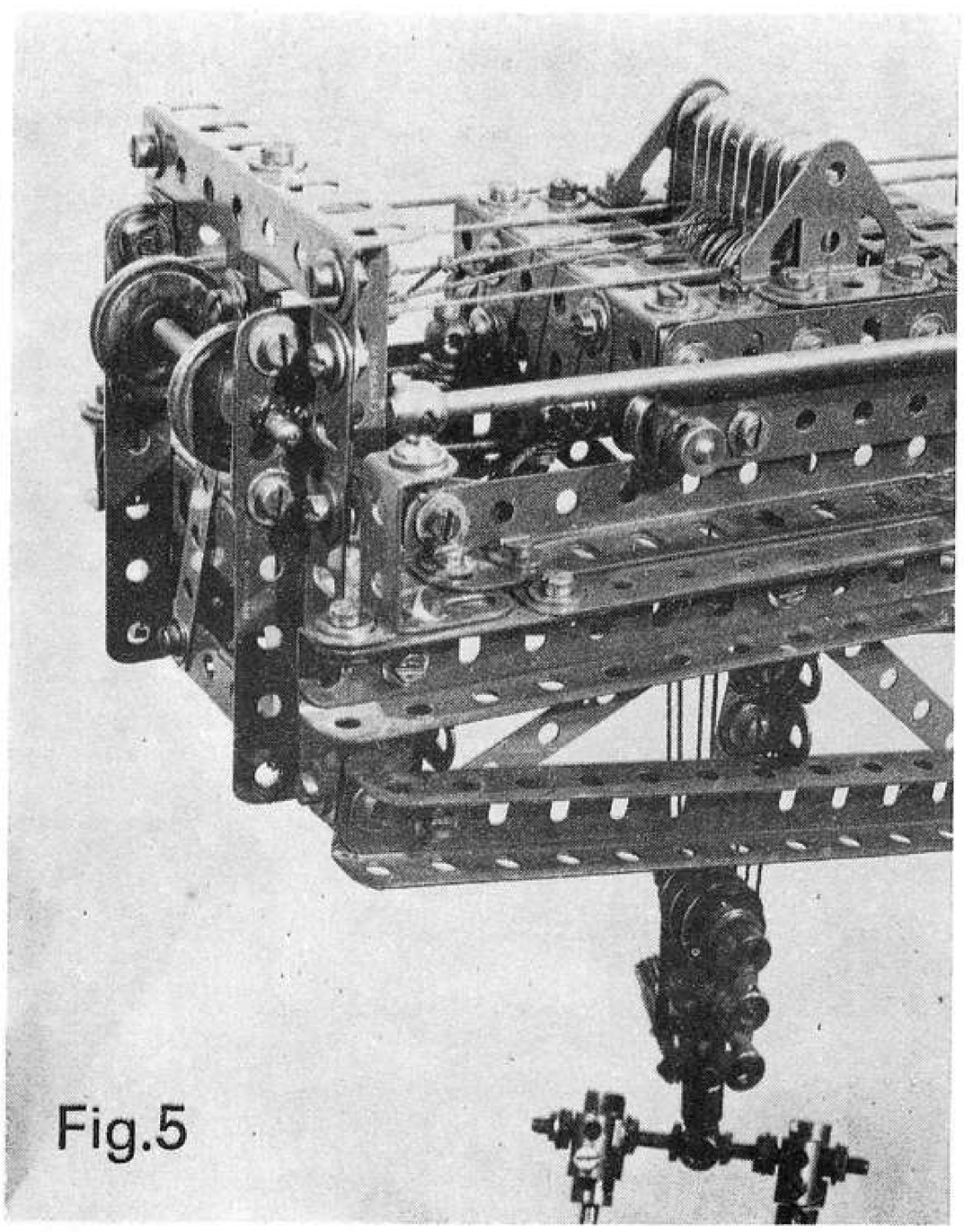


Fig.5

Fig. 4, close-up of tower base showing details of final spur drive, ladderwork and auxiliary hook stowage. A raised edge rail is used to accommodate ½" Pulleys used as travelling wheels. Fig. 5, gantry-head details and trolley construction. Hoisting cord from the winding drums is centralised by a ½" Pulley in the gantry-head after passing through the twin sets of pulley blocks in the trolley and hoisting block. Fig. 6, a ground view of Michael Martin's completed Crane. The turntable has a captive ball race. Note compound bevel, contrate and spur gear drive to travelling wheels.

netted the Meccano Cup at the 1974 Model Engineer Exhibition – a well deserved success.

Michael set himself two tasks, one being to keep the model's overall size in bounds, while still producing a fully-detailed and operating model, and the other to make sure that it had all of its motions working properly from one steamplant – just like the original juggernauts which, at the beginning of this Century, heaved into place the massive stone blocks of half the world's harbours, He achieved all of his original aims.

And herein lies the problem. General assembly details of the model have been prepared, but, because of the comprehensive nature of the model, the details are too extensive for inclusion in the magazine, itself. We therefore feature here the photographs of the model – taken by BERT LOVE – and we will supply the building instructions as a separate supplement obtainable from us on request. To obtain a copy, please send an S.A.E. (overseas, two International Reply Coupons) to: Meccano Magazine Quarterly, P.O. Box No. 4, Binns Rd., Liverpool L13 1DA.

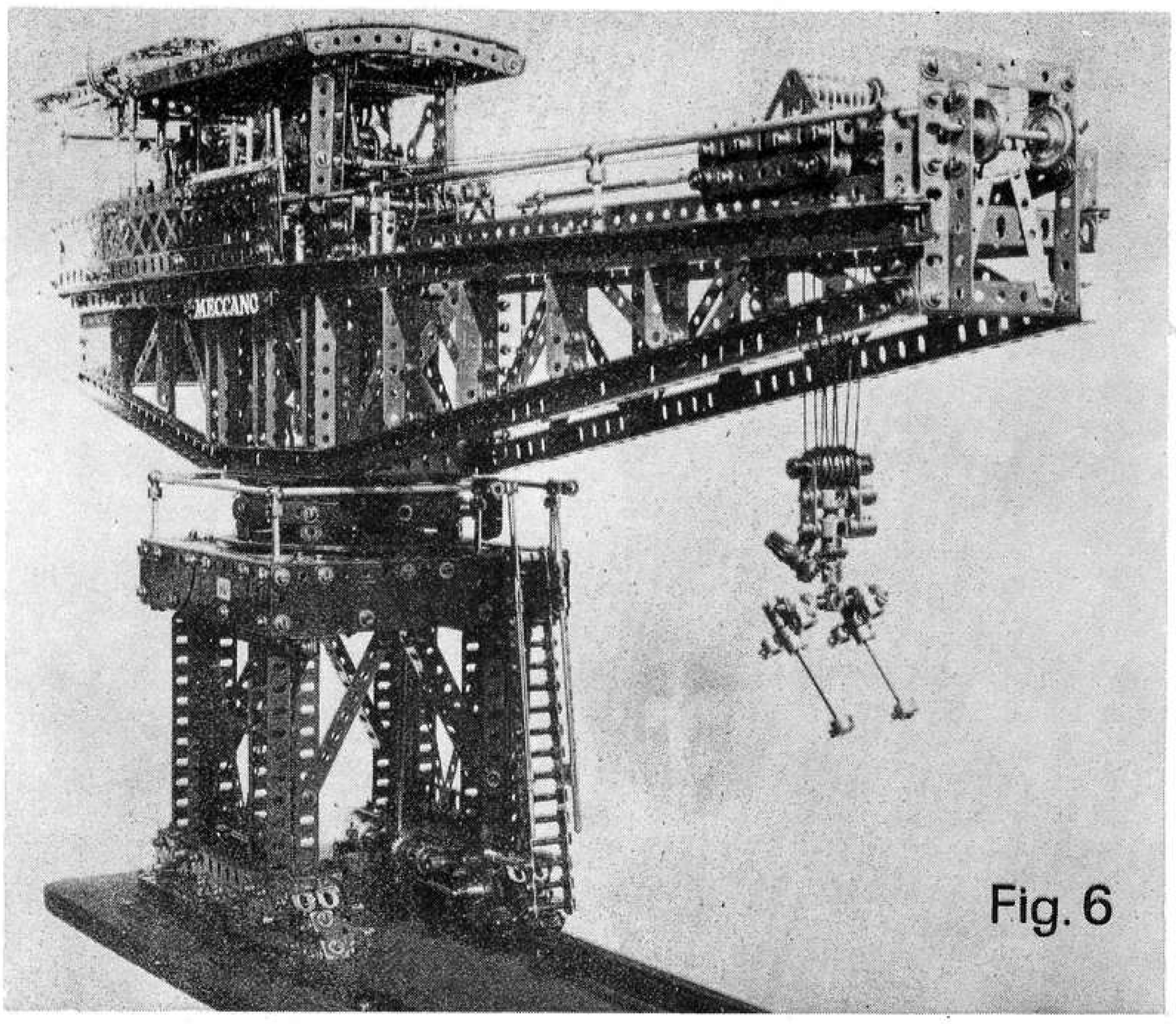


Fig. 6

GOODS WAREHOUSE with ELECTRIC ELEVATORS

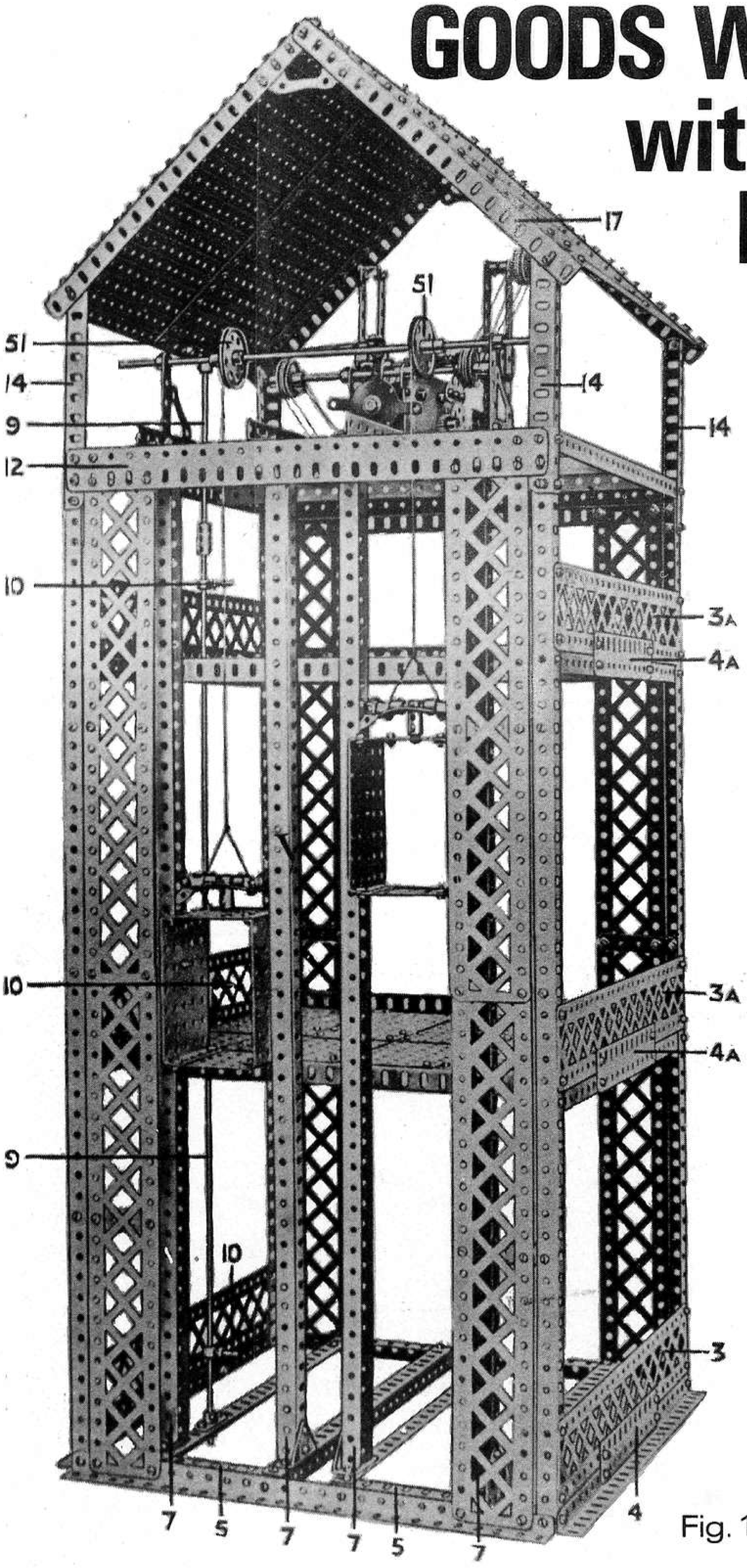


Fig. 1

Past Masters
NUMBER FIVE
(PART 1)

ORIGINALLY PUBLISHED as an eight-page Meccano Super Model Leaflet for the 1929 No. 7 Meccano Outfit, the Goods Warehouse with Electric Elevators featured as a demonstration model in many dealers' windows at the turn of the decade. There are two advantages in presenting this choice as our "Past Masters No. 5". In the first place, no obsolete parts are needed and, secondly, the model may be constructed (and indeed improved upon) with the current No. 10 Meccano Set. Only slight modifications are required – principally in substituting 12½" Strip Plates for the original 12½" Braced Girders – to build the improved version and some notes on this, together with full instructions, illustrations | for and |of the original model will be included in Part 2, next issue. This will cover the construction of the lift cages, the safety devices and the automatic winding mechanism. In the original leaflet, a six volt long-sideplate electric motor was specified, but the E15R motor may be used with a simple|modification.

To quote from the original specification, "The Warehouse is equipped with two Electric Elevators that are operated simultaneously. The mechanism is entirely automatic in action, the lift cages working alternately and rising, |pausing and decending without supervision. Operation may be controlled|from any floor of the Warehouse. Each cage is fitted with an ingenious safety catch which prevents the cage from falling should the lifting rope|fail."

The illustrations here are reproductions, not of the original *photographs* for the 1929 Super Model Leaflet, but of the illustrations

which were *actually printed* in one of the Leaflets. In other words, we have photographed a Leaflet and it says much for the quality of the printing in those days that we have been able to obtain such useable results!

Construction should begin with the framework. Referring to Figs. 1 and 2 it will be seen that this comprises four vertical 24½" Angle Girders 2 that are bolted at their lower ends to four 12½" Angle Girders 1. The method of securing these to the vertical girders will be clear from the illustrations.

To Angle Girders 1 are attached 12½" Braced Girders 8 which are further supported by means of 2½" Strips bolted across the Braced Girders 2. The sides of the base are enclosed by means of two 12½" Braced Girders 3 bolted in the position shown and secured by means of a 5½" Flat Girder 4, which is in turn bolted to the Braced Girders and to the side Angle Girders 1 in the base.

Front and rear Girders 1 each carry two 3½" Angle Girders 5 that are bolted back-to-back to the Girders 1. These 3½" Angle Girders form supports for four 12½" Angle Girders which are bolted across the base frame as shown. Four guides 7 for the two lift cages are composed of eight 24½" Angle Girders which are bolted together in pairs to form channel section girders and they are secured in position with the channels facing each other. To secure them, Trunnions 6 are bolted to the lower ends of the guides and to the transverse 12½" Angle Girders in the base. It will be noted that the flanges of the Trunnions are turned inwards, i.e. underneath the ends of the Angle Girders 7.

Fourteen 12½" Braced Girders have been used in the superstructure, but constructors wishing to use the contents of the current No. 10 set should use eight 12½" Strip Plates for cladding the front and rear vertical sides of the Warehouse, bolting the Strip Plates directly to the corner compound girders 2. Again, while the original design uses 24½" Angle Girders bolted to 5½" Angle Girders to make these compound girders, the No. 10 Set user should employ his eight 18½" Angle Girders lapped to a length of 58 holes as he must reserve his eight available 24½" Angle Girders for the lift guides 7. The two 12½" Braced Girders of the No. 10 Set may be used at the sides of the two upper floors, to replace the original 12½" Braced Girders.

The Warehouse contains two floors above the base and each of these is constructed as shown in Fig. 3, which is an underneath view of one of them. Two 12½" Angle Girders 1a are bolted to three further 12½" Angle Girders 15, one of the latter being bolted across the ends of the Girders 1a, while the other two are bolted in the eleventh and nineteenth holes from those ends respectively.

As in the base, the sides of the first and second floors are enclosed with 12½" Braced Girders (Strip Plates) 3a which are bolted to the Girders 1a by means of 5½" Flat Girders 4a. The floor proper comprises four 5½" x 3½" and four 5½" x 2½" Flat Plates that overlap and are bolted to the Angle Girders 15. The top section is an open girder work platform braced as shown in Fig. 5 to support the hoisting motor and its winding gear. It is made from eight 12½" Angle Girders and is built as follows: four 12½" Angle Girders

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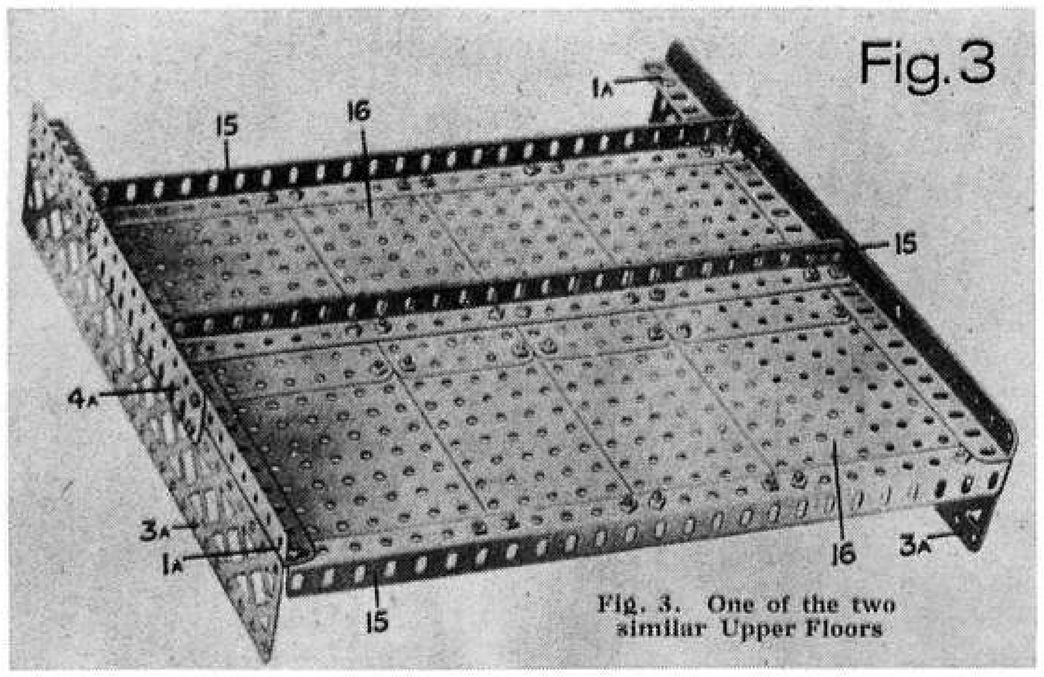


Fig. 3. One of the two similar Upper Floors

Fig. 3 (right), a close-up view showing one of the two similar upper floors of the Goods Warehouse, Fig. 4 (lower right), an underside view of the Warehouse roof showing the liberal use of Perforated Strips.

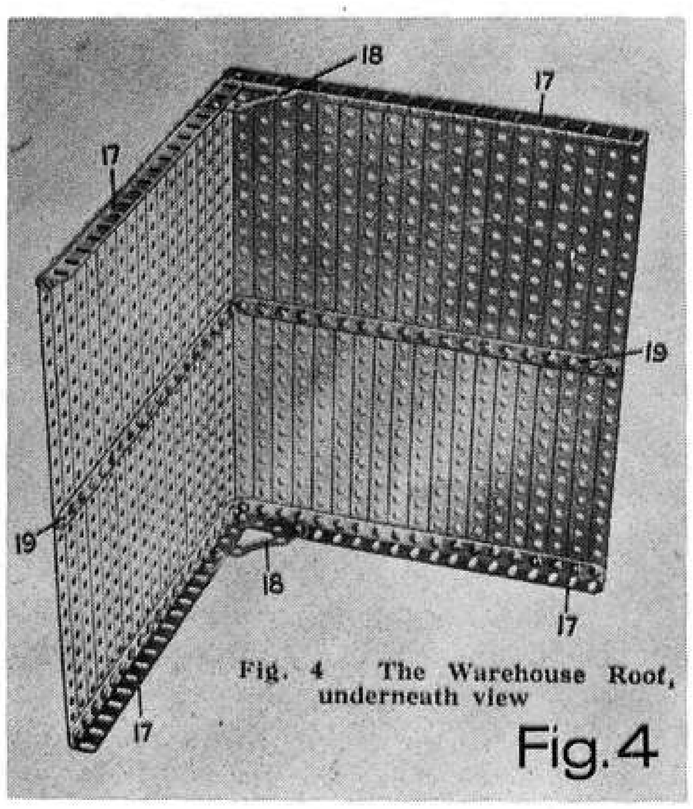


Fig. 4 The Warehouse Roof, underneath view

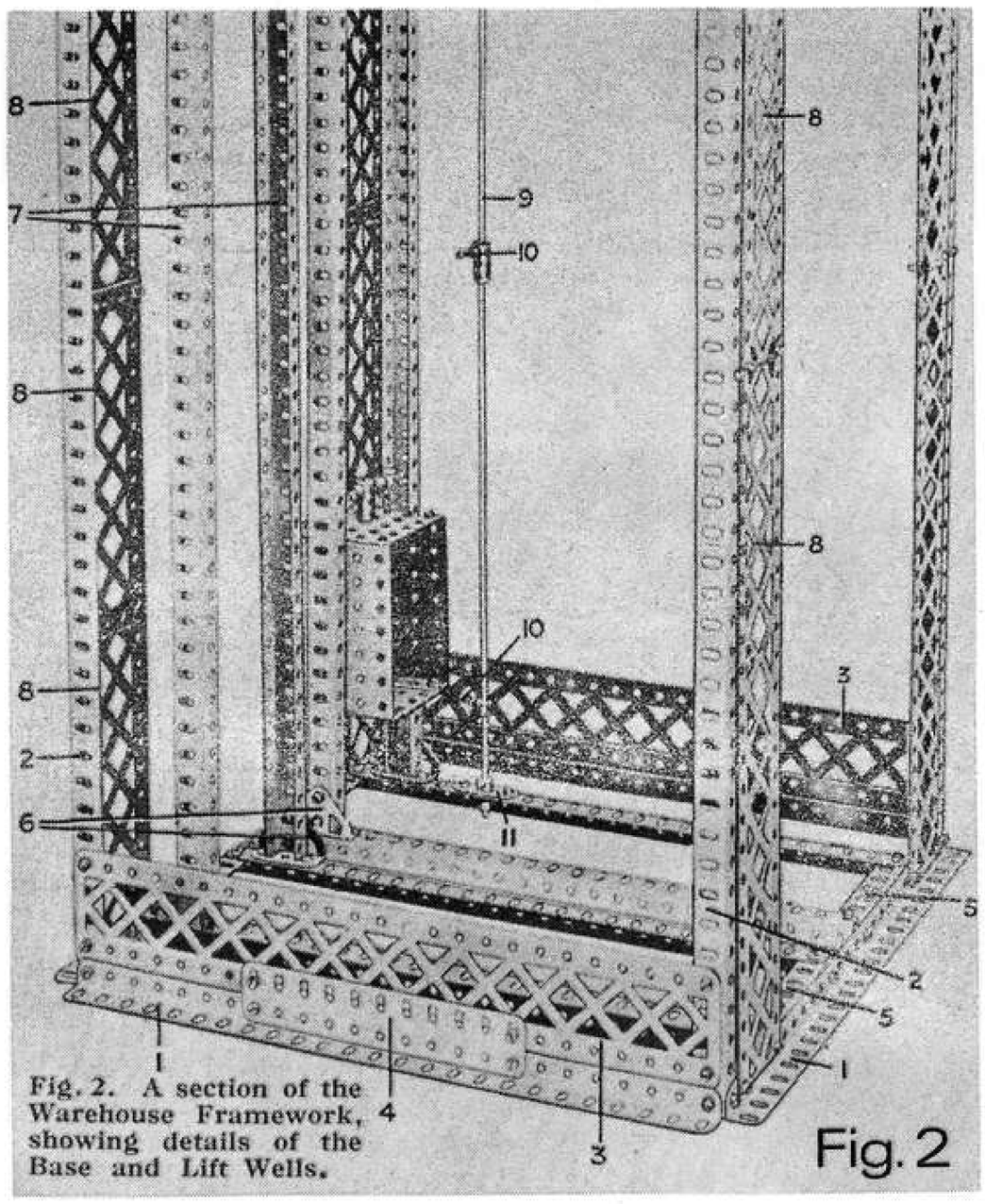


Fig. 2. A section of the Warehouse Framework, showing details of the Base and Lift Wells.

Fig. 1 (opposite page), No. 5 in our 'Past Masters' series, a general view of the completed Goods Warehouse with Electric Elevators, reproduced from an illustration in the original 1929 Super Model Leaflet. Fig. 2 (left), a section of the Warehouse framework showing the details of the base and lift wells. The elevator control shaft is made from 11½" Rods joined by Couplings and runs from top to bottom of the Warehouse, being carried in a Double Arm Crank 11 at the base.

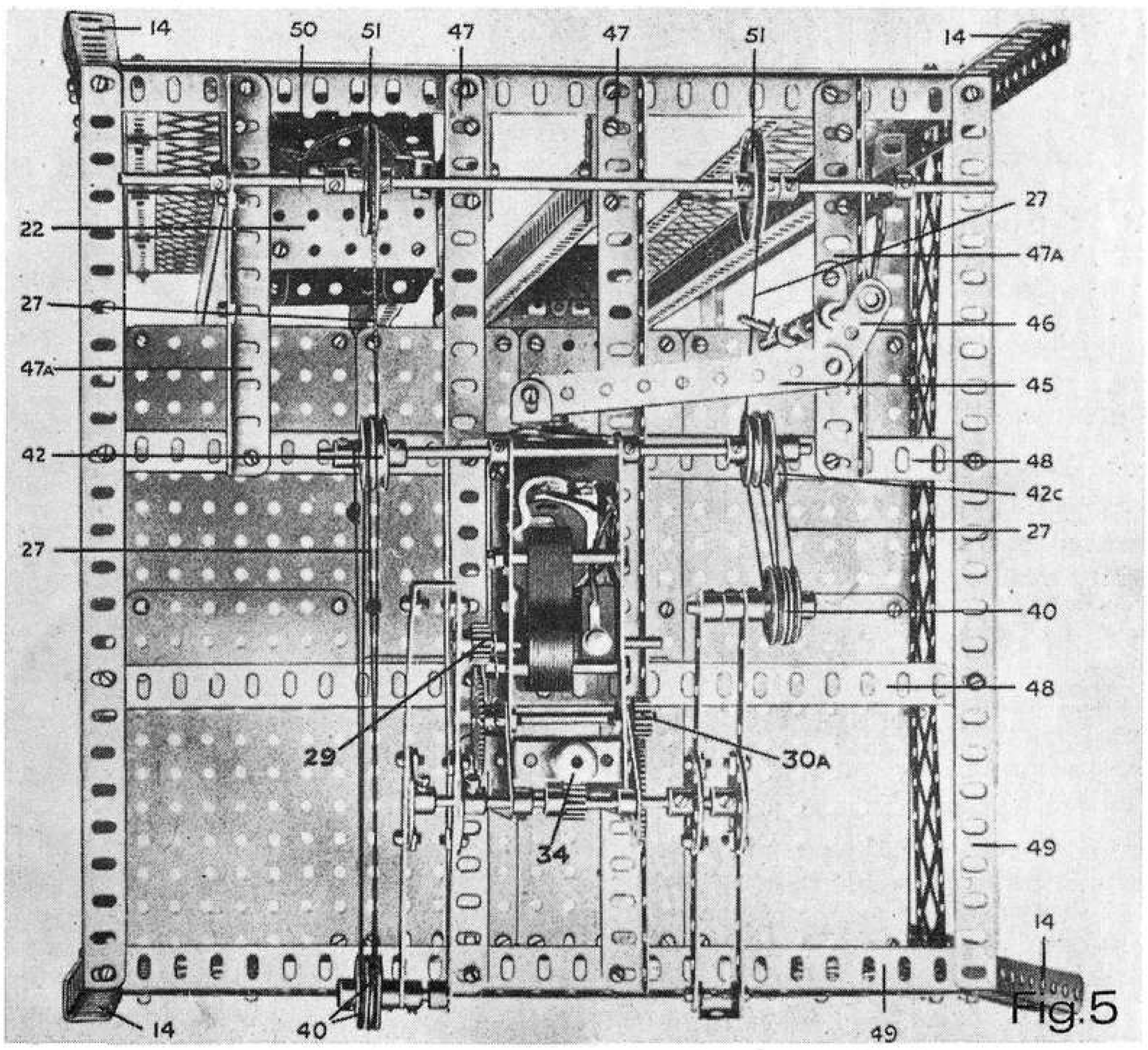


Fig.5

Fig.5, a plan view of the top floor of the Warehouse with the roof removed to show the arrangement of the Electrical Motor and the lift-drive mechanism. The motor illustrated is an obsolete 6 volt unit, but the current E15R Motor may be substituted with a simple modification.

47 and 48 are bolted up in a cross formation with their flanges reversed (see Fig. 5) and then bolted in turn to the four 12½" Angle Girders 49 to form the square braced motor platform. Two 5½" Angle Girders are fitted to the front of the platform five holes in from the sides, as shown, to support the Corner Gusset holding part of the winding gear.

No. 10 Set owners will have to reserve their sixteen 12½" Angle Girders for the base and top platform of the Warehouse so will have to make the two floors described above from alternative parts. As mentioned before, 12½" Strip Plates will make improved side bracing for the two floors, especially if reinforced top and bottom by horizontal 12½" Perforated Strips. There are plenty of these in the No. 10 Set and, when fitted with ½" x ½" Angle Brackets, they make excellent substitutes for the 12½" Angle Girders required in the original specifications. This is well within the scope of the average builder and with the shorter lengths of Angle Girders and large number of Flexible Plates still left in the No. 10 Set, he can, in fact, produce much better "non-perforated" warehouse floors.

Roof construction is shown in Fig. 4. and requires thirty-eight 12½" Perforated Strips in the original design, but the eight remaining 12½" Strip Plates in the No. 10 Set will give a superior finish. The roof edges are four 9½" Angle Girders 17 reinforced by Corner Gussets 18 and 9½" Strips 19.

Next issue, we will conclude details of the model with construction of the lift cages, safety devices and automatic winding mechanism.

PARTS REQUIRED

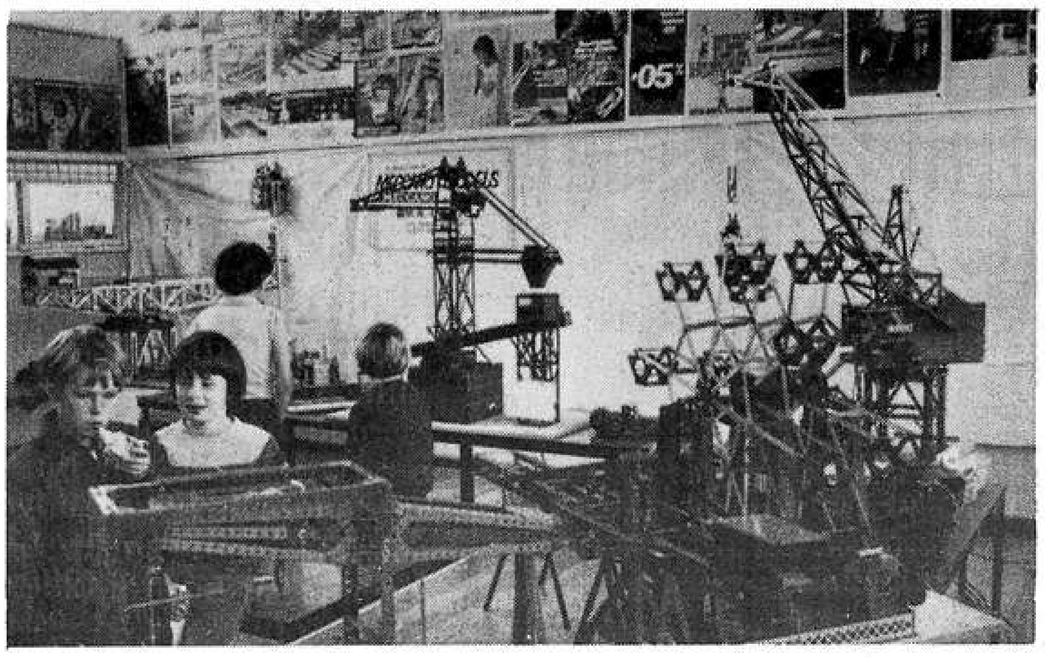
38-1	2-10	2-32	6- 70
2-1a	2-11	424-37	4- 72
4-2	1-12	2-37a	14- 99
1-2a	3-12a	8-38	4-102
9-6	1-14	1-40	6-103
2-6a	2-15a	1-48	2-103b
12-7	2-17	8-52a	4-108
26-8	2-21	4-53	5-115
4-8a	8-22a	2-53a	4-126
6-9	4-24	28-59	2-136
4-9b	4-26	1-62	1 Electric
4-9f	2-27a	2-63	Motor

EXTRA PARTS FOR SAFETY DEVICES

2-18a	2-63	2-140	4-147a
6"-58			4-147b

EXHIBITION NEWS FROM "DOWN UNDER"

After a break of more than two years from display activities, Mr. Bill Inglis of South Blackburn, Victoria, Australia has returned in style – with a complete one-man Exhibition of Meccano Models! The Exhibition took place on 2nd November last at the Highvale Primary School in Mount Waverly, Victoria, as part of the school's annual fete, and it proved a great success.



Our picture below shows a section of the display – photographed during a rare quiet period – and we think all readers will echo our gasps of amazement at the number of models on show. Don't forget, it was a *one-man* Exhibition, so Bill must have one enormous Meccano collection!

During the show Bill was helped by his son, Paul, who attended as "official demonstrator" of dad's modified SML 35, Automatic Grabbing Crane, now rigged for complete remote control, and he also served as custodian of a Servetti "Money Grabber" which did a sterling (!) job in raising money for the school. Both father and son are to be congratulated on a magnificent presentation.

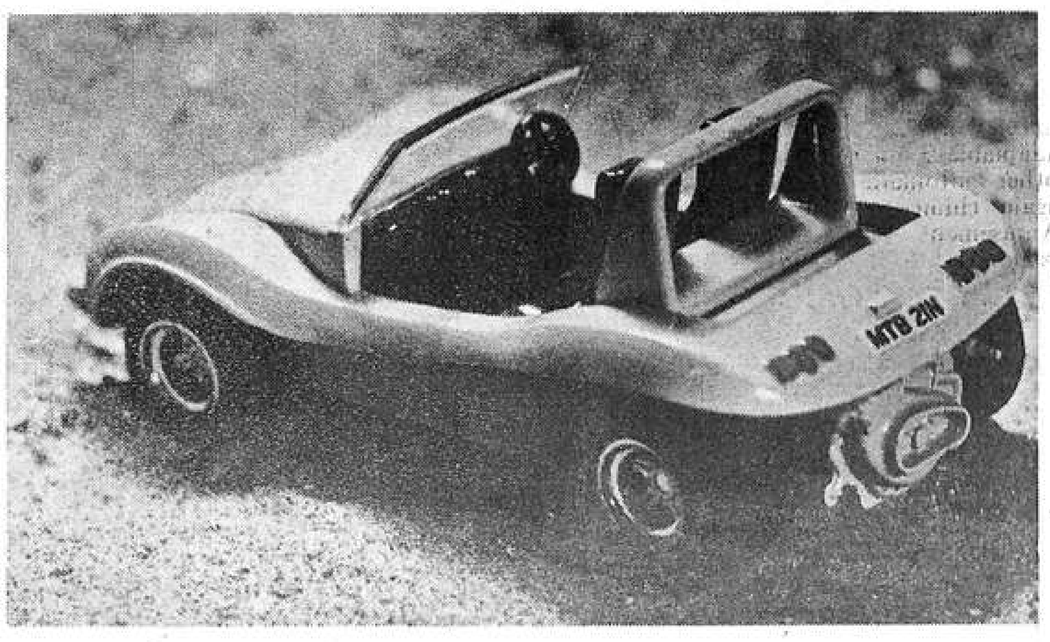
From Bill, himself, comes one last comment which may well be of special interest to other prospective exhibitors. "The Automatic Ships Coaler, SML2," he says, "Was the most popular model. When I built this I sure made a winner as far as exhibitions are concerned!"

DINKY TOYS NEWS

A look at the new Dinky Toy models released since the last issue of "Meccano Magazine Quarterly".

Above and right; No. 984 Atlas Digger, produced to 1/36th scale and measuring 247 mm. in length. Action features include a fully-operational bucket arm (attitude controlled by simulated hydraulic rams), a revolving body and flexible tracks. Other features include a detailed casting and a fully glazed, "upholstered" cab. Overall finish is in yellow with an orange chassis, cab interior and exhaust. The engine representation and bucket are finished in silver, and the hydraulic rams and flexible tracks in black.

Below (left and right); No. 227 Beach Buggy, based on the popular Renegade design. Produced to 1/32nd scale and measuring 195 mm. in length, features include a realistic interior moulding with "high-back" seats, a moulded windscreen and a detailed engine casting, as well as a roll-over bar, a removable moulded hood and representations of extra-wide, "sculptured" wheels with low-profile tyres. Overall finish is in yellow with a red interior, grey hood and silver engine.



MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Reports should be approximately 350 words long, and should reach us by the end of the second month before month of publication.

CAPE TOWN MECCANO CLUB

Congratulations go to Tatchell and Pam Venn on the birth of their son (another potential Meccanoman!) on the 15th October last year. For some months now they have been touring England and Europe, and we look forward to their return.

Army training has caught up with Richard Schonegeval, so we shall not see him for a while either.

Michael Adler is experimenting with hydraulics for his models. He has discovered that expended plastic syringe tubes fit well into Chimney Adaptors and an Axle Rod, passing through the central hole and into the tube engages with the piston.

I am still busy with my 3ft. diameter Roundabout. It hangs and rotates on a Ball Thrust Bearing, and is steadied at the bottom by four 2" diameter Pulley Wheels with Tyres, horizontally mounted, running around the outer edge of a 9-7/8" Flanged Ring.

I have just received detailed illustrations of a 170 ton earth-moving 'Haulpack' diesel-electric truck made by Wabco. It stands 20ft. high on 11ft. diameter wheels, and I plan to reproduce this as a scale model.

The Cape Town Meccano Club and I would like to wish all Meccanomen, and the staff of Meccano Limited, a pleasant and prosperous New Year, and happy Meccanoing.

Colin Cohen.

CHRISTCHURCH MECCANO CLUB

Members of the Christchurch Meccano Club have spent a lot of time preparing for exhibitions. In 1974, we provided two major displays in Christchurch City, and two minor displays in suburban schools. However, whereas two years ago we had to ask around to find places for us to hold displays, now we are being asked to give displays – a rather pleasant swing in attitudes which reflects the hard work members have put into promoting Meccano.

Recently, the Club was approached by New Zealand Television to provide two models for use in a children's programme entitled "Scribbles", which was featuring hobbies on one of its New Zealand-wide programmes. The television people were so keen to have our models that they quite willingly drove six miles to collect one of them! This is the third time that members' models have appeared on television, and the second time the Club has been asked to provide models for a T.V. show. On this occasion the members involved received payment for the use of their models.

As 1974 draws to a close, the Club has already been asked to display models at the 'Building Centre' again, in August 1975 (we held a very successful exhibition there in February 1974). The Manager of the 'Building Centre' was so impressed with our efforts that 1975's exhibition is to be held in their Promotions Hall – which is about three times the area that we had last time! Perhaps the Editor might be able to come out and see just what the Christchurch Meccano Club can do. *(Wish I could Mr. Burrell, wish I could!* – Ed.)

Kingsley Burrell

HENLEY SOCIETY OF MECCANO ENGINEERS

The October meeting provided an opportunity for a close inspection of some of the models first shown at the Henley Exhibition. Despite the amenity and success of the 'members day' at the big show, there were those of us who never got a proper look. For my part, I was delighted to have Tony Knowles explain and demonstrate his two adaptable 3-movement Gearboxes – one manual and the other automatic and programmed. Paul Jack's Clock again chimed for us, and John Clayton's Automatic Amusement Machine was still firing off its ping-pong balls. Also having a second showing were Bill Roberts' Follies, Christopher Reeve's J.39 and Cyril Felstead's Carousel. Tom Marlow's built-up Ball Thrust Bearing is the neatest I have ever seen, and I would hope to hear more of it through the modelling pages.

Models which I had not seen before included Keith Orpin's Meccano Hat and Fowlers Showmans Engine, Dennis Thomas's Loom, Peter Roberts' Stock Car and John Beadle's MMQ Digital Clock. The model of the moment was surely Mike Nicholl's extraordinary steam-driven Flying machine. This is an excellent interpretation of Henson's Aerial Steam Carriage of 1843 and is fitted with a Meccano Steam Engine. Mike is rather proud of the fact that his model, just like the prototype, does not actually fly!

Chris Harrison was Chairman and we had some discussion about a Club badge. Geoff Wright quoted a letter he had received from Mr. Norman Hope, Managing Director of Meccano Limited, expressing appreciation of the efforts made for the Meccano hobby at the Henley Exhibition, and acknowledging the debt that the Company feels due to adult enthusiasts everywhere. Mr. Hope's letter is a very heartening gesture, and I am sure we all look forward to continuing this mutual confidence.

This very enjoyable meeting closed with a slide show by Kim Fisher, and other members, the subjects concerning models at the Exhibition and elsewhere.

Alf. Reeve.

HENLEY SOCIETY OF JUNIOR MECCANO ENGINEERS

Our November meeting was held in a smaller room than usual. This, combined with a record attendance of members, resulted in the most crowded meeting in the Club's history.

A good number of interesting models were on show, many of which had not been seen before. John Mildenhall's Derrick Crane had been dismantled and rebuilt as a beautiful Crawler Chassis, Peter Simpson's enormous Contractor's Crane was reincarnated as a Bulldozer, and spent most of the meeting doing battle with John's Crawler – except whilst the latter was employed in shunting operations with Chris Reeve's LNER Tender Loco (MMQ Oct. '74)!. An unusual Burgular Alarm was shown by Michael Drinkwater: the alarm not only warned of intruders by making a dreadful noise, but also trapped them by sealing-off the entrance with Axle Rods.

At about the same time that this issue is published, we shall be having our next meeting. We are looking forward to seeing the models that members have constructed with the Meccano Sets that they will undoubtedly receive for Christmas.

Paul Smith.

The very crowded November meeting of the HSJME. Left: Tim Williamson operating Peter Simpson's Bulldozer. Right: John Mildenhall seems amused by the Burgular Alarm being operated by its builder, Michael Drinkwater.

NORTH WEST MECCANO GUILD

In the interval since our June meeting, members have been active in the display model field: the Secretary has had a model Windmill installed for five weeks at the local Bank, and Norman Chapman has had his fine Co-Co-Diesel Locomotive on display in local stores. As Norman's model employs no less than eight motors, it has attracted a lot of attention. Bill Charleson has had his excellent Level-luffing Crane on show at the inaugural meeting of the 'Pennine Meccano Guild'.

The next important event on the Guild calendar is our public exhibition at Clitheroe on April 5th. A great deal of preparation for this has been in progress over the last few months, with every member preparing his own 'masterpiece'! We hope that as many other Meccano modellers as possible will join us on the day to make it a huge success, and give the Meccano system a good public showing.

The monthly "Guild Newsheet" - started last September – has been very well received, as most of the members live quite a distance apart from each other. The Newsheet has become our "official organ", and will remain so until such time that a Guild magazine is produced.

Michael J. Walker

The N.W.M.G. is to hold an "Open" Exhibition on 5th April. See ad. on Page 23.

PENNINE MECCANO GUILD

The inaugural meeting of the Pennine Meccano Guild was held at 2.00 p.m. on Saturday, 12th October at the Broadoaks Cricket Club, Huddersfield, Yorkshire.

With a membership of twelve (eleven of whom were present at the meeting) a fine display of models was mounted, the centre-piece of which was a magnificent Eastern Region Deltic 3300 H.P. Locomotive. Built by Norman Chapman of Huddersfield the model was 5'9" in length and has received much publicity in the local press and was on display during November in a large department store in Huddersfield. Mr. Chapman also demonstrated two S.M.L's; the 4-6-4 Baltic Tank loco and a Dragline Excavator.

John Russell of Wakefield presented two models – a small-scale Road Locomotive and the Live Steam Locomotive from the December '72 Meccano Magazine. Another local member, Alan Grimshaw from Yeadon, brought a small Roundabout neatly stored in a suitcase for the journey to Huddersfield!

Excavator enthusiast Mike Pashley from Sheffield demonstrated the tracked base of a Marion 6360 Giant Stripping Shovel which he is constructing. Powered by

two E15R Motors, the model travelled and steered very realistically on four tracked bogies equipped with plastic caterpillar track. When complete, this one is going to be a winner!

The Secretary brought a neat Harrod's Electric Delivery Van built by John Bader of Bradford, and demonstrated three models of his own: a much-modified S.M.L. Level-luffing Crane; a Live Steam Shovel; and a small Tipping Truck, utilising the Multikit cab.

Finally, the Secretary of the 'North Western Meccano Guild', Michael Walker, showed us one of his fine American cars. The model had many sophisticated safety features, including a sprung front fender which disconnected the main drive in the event of a collision.

The Pennine Meccano Guild has already established close links with it's neighbour – the North Western Meccano Guild – and looks forward to many joint ventures in the future. The meeting ended with a vote of thanks to Edna Chapman for preparing refreshments to fortify members for (in most cases) the long journey home.

Bill Charleson

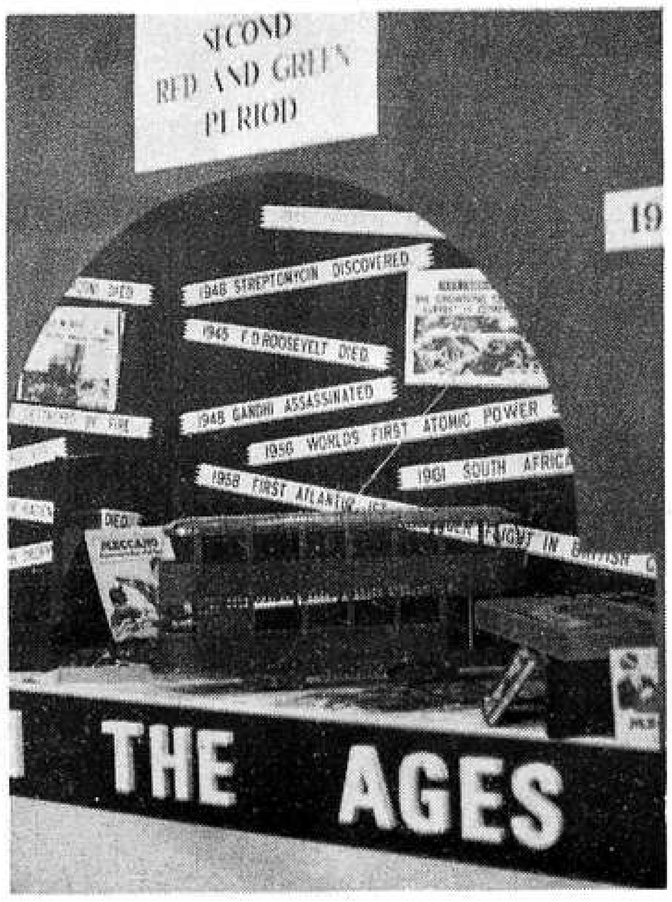
(Anybody interested in joining the Club should contact Mr. Charleson at 5, Kirkstone Drive, Gomersal, Cleckheaton, BD19 4QG, Yorkshire).

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

The membership made its pilgrimage to Hall Green on Saturday, September 28th for another excellent meeting.

Transport is always a problem for our long distance members, but Tom Masters made a bus journey from Gateshead, complete with model, which took him no less than sixteen hours of travelling time for the return trip! He brought a large Radial Gantry Crane in his giant 'cardboard box' and epitomised the enthusiasm of our membership. David Whitmore had to bring his model in a suitcase, by train, from Kent, but he still had the members fascinated with his Elliptical Drawing Machine made after studying a prototype more than a hundred years old. Father-and-son team Leslie and Barry Clay took the bus from Coventry, but they also arrived loaded with models. Leslie showed an updated version of the amphibious D.U.K.W., while Barry showed how the Supermodel 'Steam Excavator' could be made with the modern Meccano Steam Engine.

Pat Briggs showed a most elegant clock – skeleton style – and Clive Hine showed his automated Jeep. Paul Brecknell had a base unit for a Steam Derrick Crane with a 'steam' plant built in normal Meccano parts, but operated from a 6-speed Motor hidden in the 'boiler'. Ralph Clark brought another scale model American veteran in the form of an 1879 'Camelback', nicely modelled to a scale of ½" to the 1 ft. David Guillaume had two Auto Reversing Tramways complete, one of which used a mechanical reversing drive while the second used a nicely-designed change-over latching relay. Roger Lloyd showed the No. 10 Tractor & Dump Truck Supermodel and Michael Martin demonstrated a large Level-luffing Floating Crane with multiple hoists based on a German prototype. Multikit models by John Palmer showed how 'Two for the price of One' could be obtained by



One of several distinctive 'booths' at the Rand Hobbies Fair, each covering a major period in Meccano's history. The period depicted here is the second "red and green" period, between 1945 and 1964.

combining outfits to produce a contractor's Bulldozer and Tractor unit.

The Society's Vice Chairman brought two supermodels in the shape of Bert Love's No. 10 Set Grandfather Clock and his decimal money version of the 'Meccano Bandit'. Models shown by the Hon. Sec. included two supermodel cranes to his own design and a nine-foot-long model of the 1942 Battleship "Vittorio Veneto".

The usual fine fare was provided at refreshment times, thanks to the ladies, and with room for everyone to display their models in comfort, the meeting proved most enjoyable.

B. N. Love.

TRANSVAAL MECCANO GUILD

The Meccano Exhibition at the 1974 Rand Hobbies Fair, Johannesburg, attracted no less than 25,000 visitors. The entire Exhibition was the work of just twenty members of the Guild: I think these members are to be congratulated on their magnificent achievement in staging a wonderful Exhibition.

The Mayor of Johannesburg officially opened the Fair at 3 p.m.; at 3.30 p.m., the Mayor and his party visited the Meccano Exhibition and, after a lightning tour, he expressed delight in all the wonderful models on display.

One outstanding feature of the Exhibition was a 100 ft. long display of Meccano Ltd's history taken from the Meccano Museum – which won a silver medal. It consisted of a representative selection of all, but four of the Meccano products that have ever been manufactured by the Company since 1901.

Turning now to the models on display, the largest was a giant mobile Coles Crane which stood some 23 ft. in height (is this a record height for an enthusiasts model?) by Charlie Roth, and a Bucket Wheel Excavator by Bill Steele. Another remarkable model was Paul Hatty's 3 ft. Mini Clubman: the bodywork was particularly good, and obviously the work of an experienced modeller. Our Honorary member, Mr. J. J. Pienaar, is still modelling at the age of 74, which goes to show that Meccano Ltd. were right when they said that Meccano is suitable for anybody from 8 years to 80 years! Mr. Pienaar showed a model of the Rand Water Pump of 1914 vintage, built from memory. There were, of course, lots of other models too numerous to mention here – in fact, we counted 154!

Last year, the Guild won the 'Hector Falconer Floating Trophy' which is presented at each Hobbies Fair for the most meritorious exhibit of the entire Fair. And we won it again this year! Peter Matthews was presented with the Trophy – on behalf of the Transvaal Meccano Guild – by Mr. Wiley, Chairman of the Rand Hobbies Fair. It now stands back in place in the Meccano Museum.

When the formalities had concluded, all members of the Guild enjoyed a well-earned celebration – complete with champagne!

Peter Matthews

PROPOSED NEW MECCANO CLUB

A life-long Meccano enthusiast in the North East of England, Mr Frank Beadle, is anxious to form a Meccano Club if response is favourable. Anybody interested in joining Mr Beadle in his project should contact him at 33 Pierremont Crescent, Darlington, Co. Durham, DL3 9PB.

COLLECTORS' CORNER

Continued from Page 13.

Very worthy of mention is the last motor under discussion, i.e. the Emebo. This was a Binns Road product in the late 50's and is illustrated to the right of the "cricket ball" motor in Fig. 3. Small and compact and having its own built-in reduction gear, the Emebo was a surprisingly powerful little motor and well adapted for use in over-head gantries or confined spaces. It was a D.C. only unit and could be run quite satisfactorily from dry batteries. Its casing was all plastic and it was fitted with a pair of leads soldered to the brush caps. Apart from its compact design, it had the advantage of being reversible merely by swopping over the battery leads, whereas those Meccano motors mentioned previously were 'Universal' types, series wound, and although they would operate from A.C. or D.C., reversing leads made no difference to the direction of rotation. Reversing was achieved by a double pole switch which had to be operated on the motor itself.

Although comparatively short-lived, the Emebo did stirling service, but was phased out in favour of the present day 6-speed Gearbox Motor in the early 60's. I, for one, was sorry to see the Emebo go, but, while appreciating the past, it never does good to cry about it!

CORRECTION

We regret that, in Brian Williams' article "HOW LONG IS A PIECE OF. . ?" in the last (October 1974) MMQ, one or two errors were inadvertently included. We would now like to make the necessary corrections.

Referring to the first column on Page 94 of the October issue, the main formula given as

$L = 2C + (D + d \times 1.57)$ *should read:*
$L = 2C + (D + d) \times 1.57$. Also the example given in the same column should read (with corrections underlined):

Example:- a 1" Pulley driving a **2"** Pulley at shaft centres of 3":-

$L = 2 \times \underline{3"} + (1" + \underline{2"}) \times 1.57$
$= 6" + 4.71"$
$= 10.71"$

We apologise for any confusion the errors have caused.

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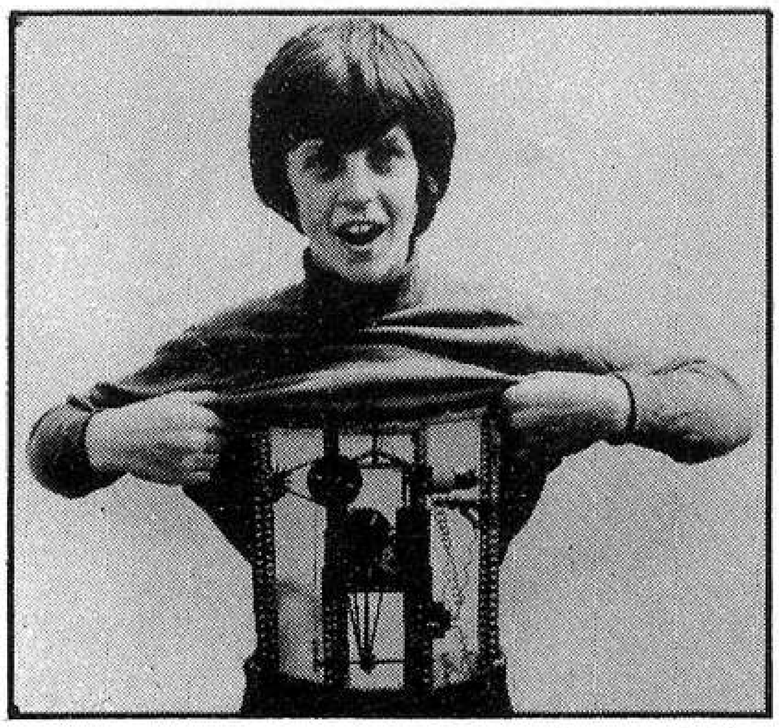

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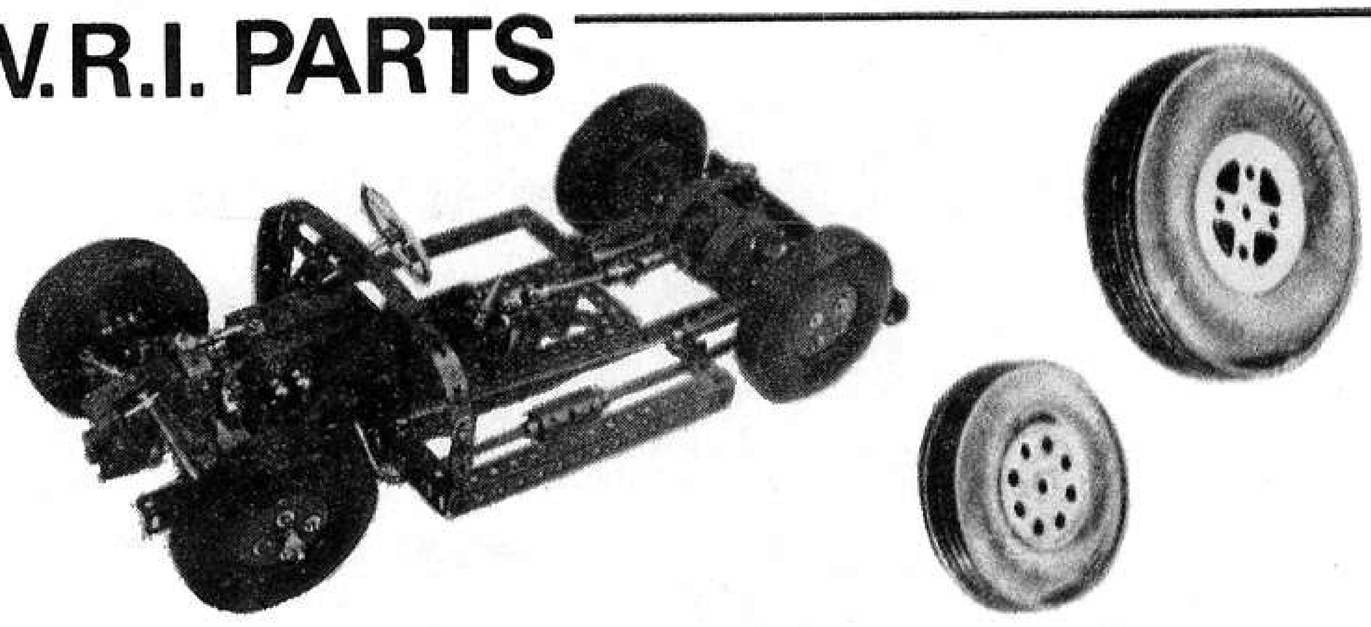

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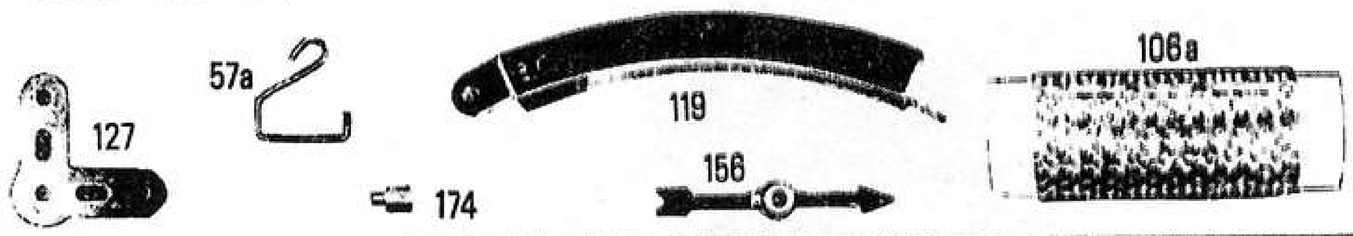

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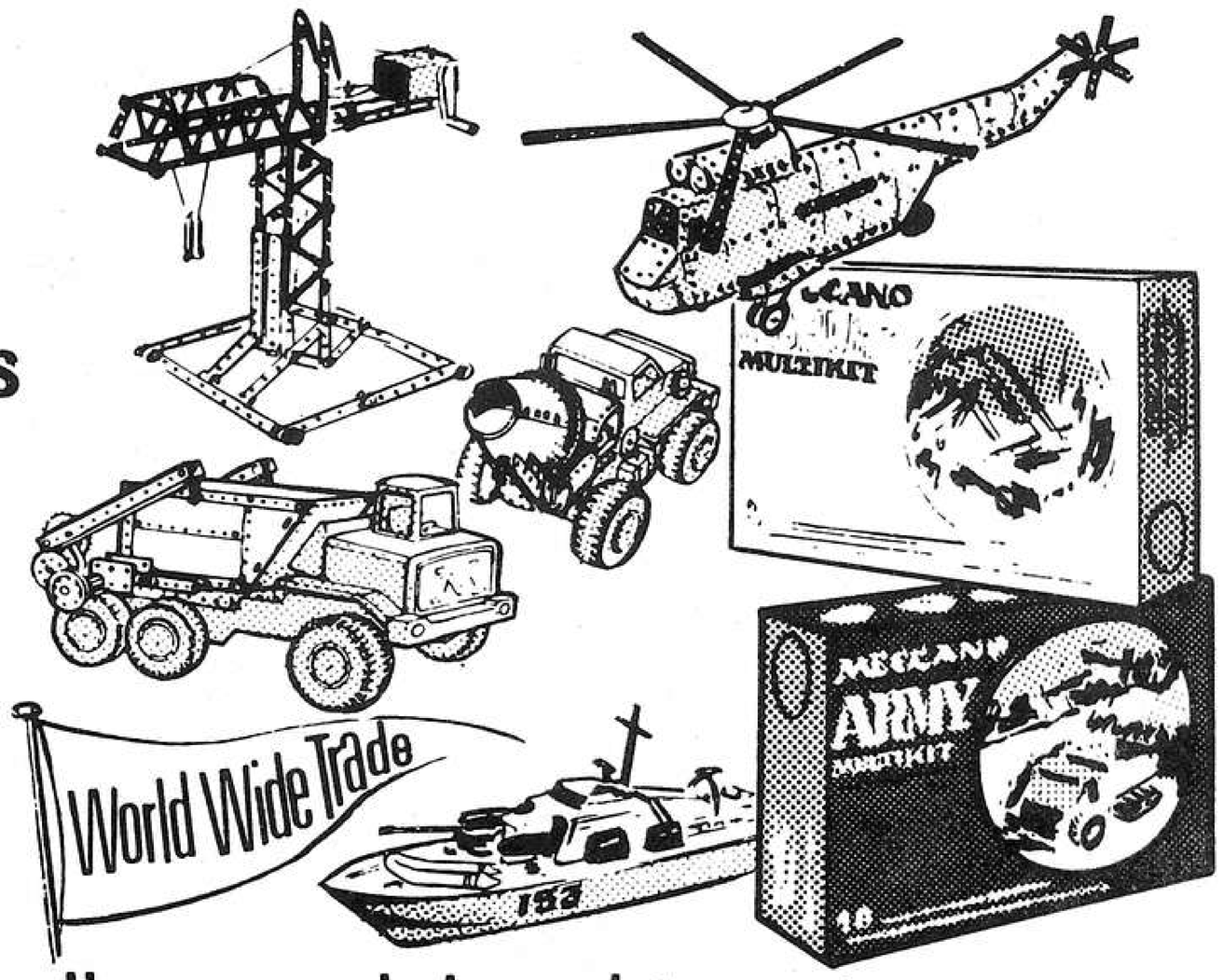

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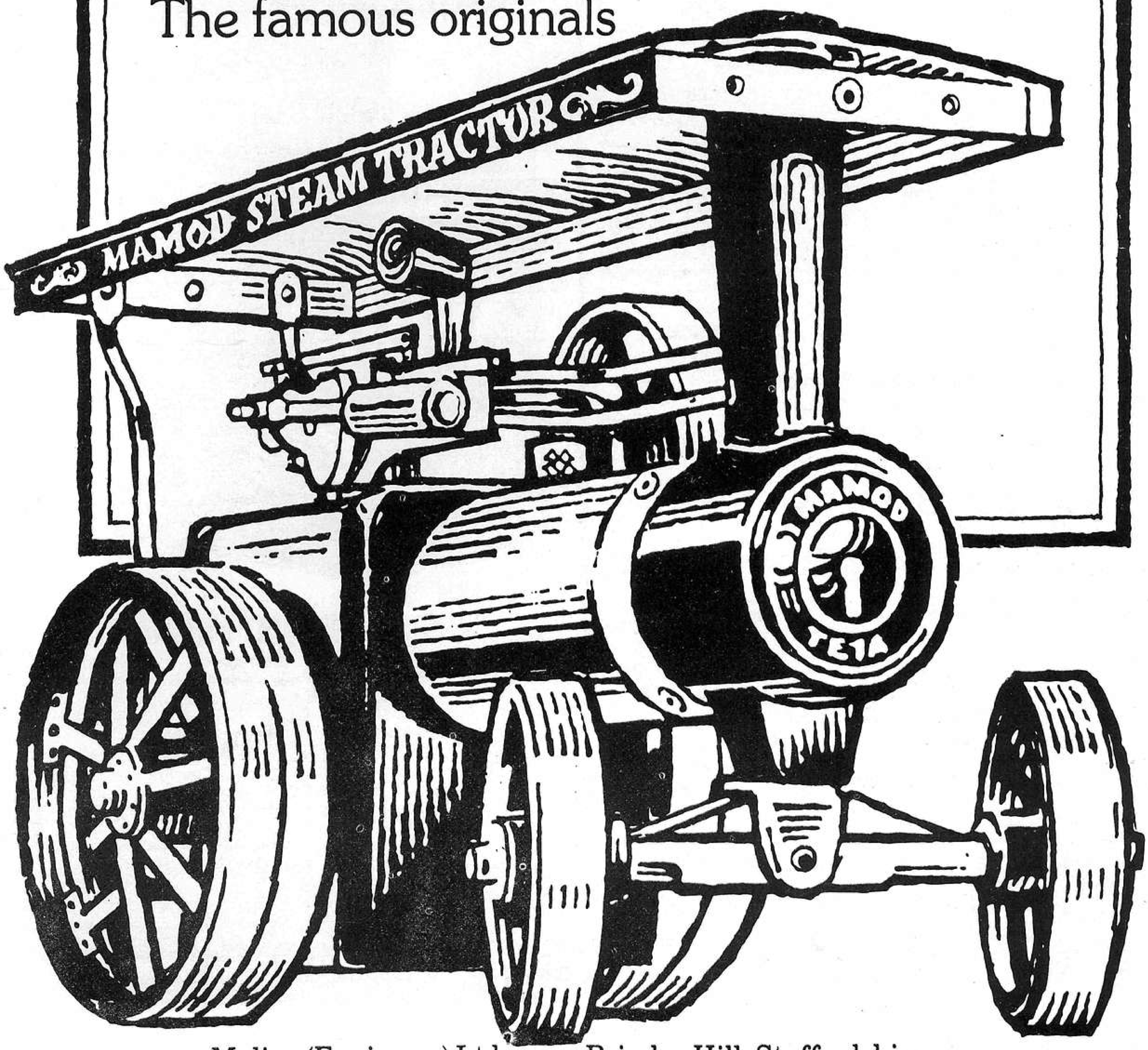

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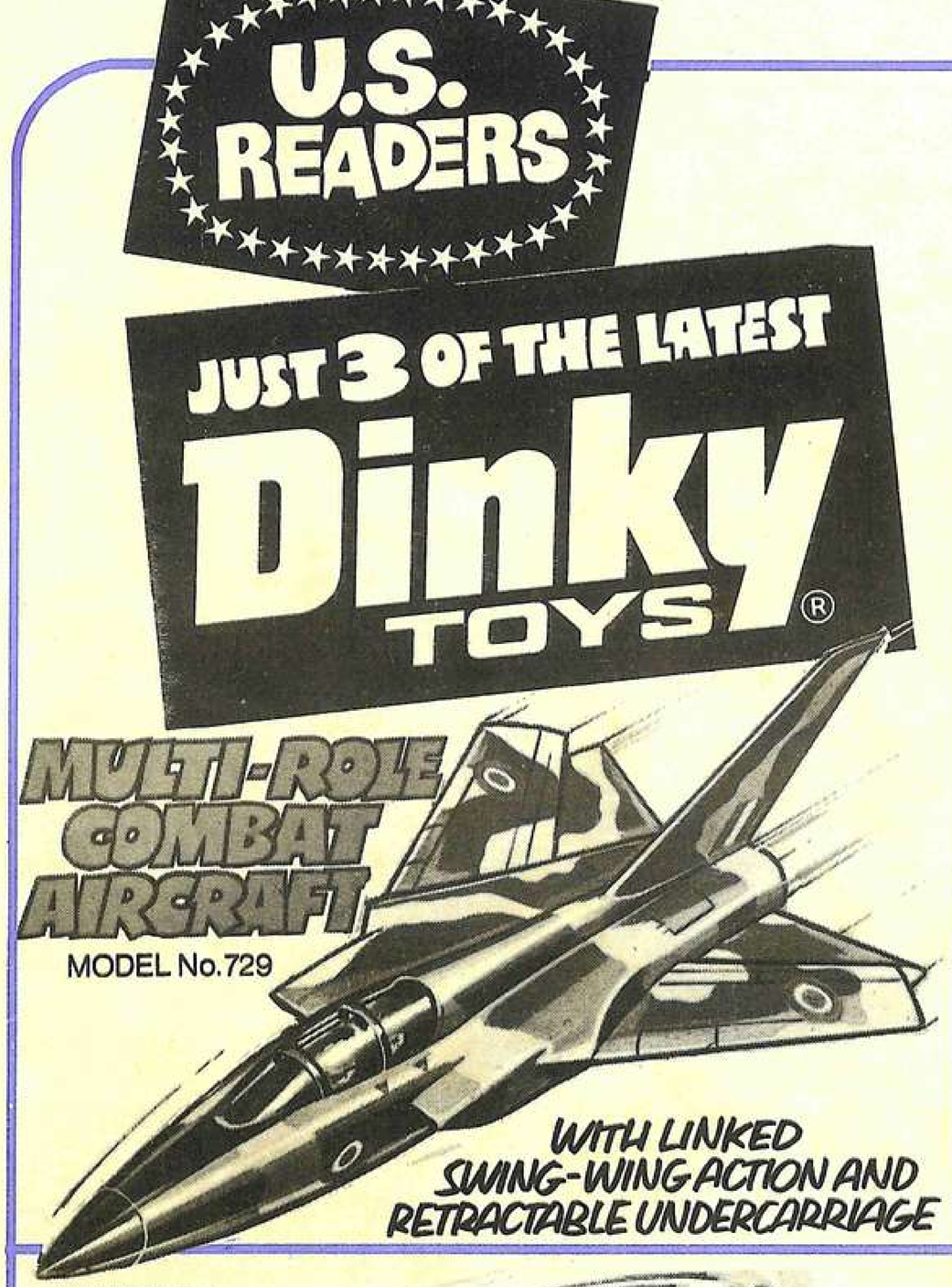

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Supplement to the
January 1975 issue.

TABLE-TOP BLOCK-SETTER

by MICHAEL MARTIN

*

Assembly notes for the cup winning Crane featured in the Jan.'75 MMQ

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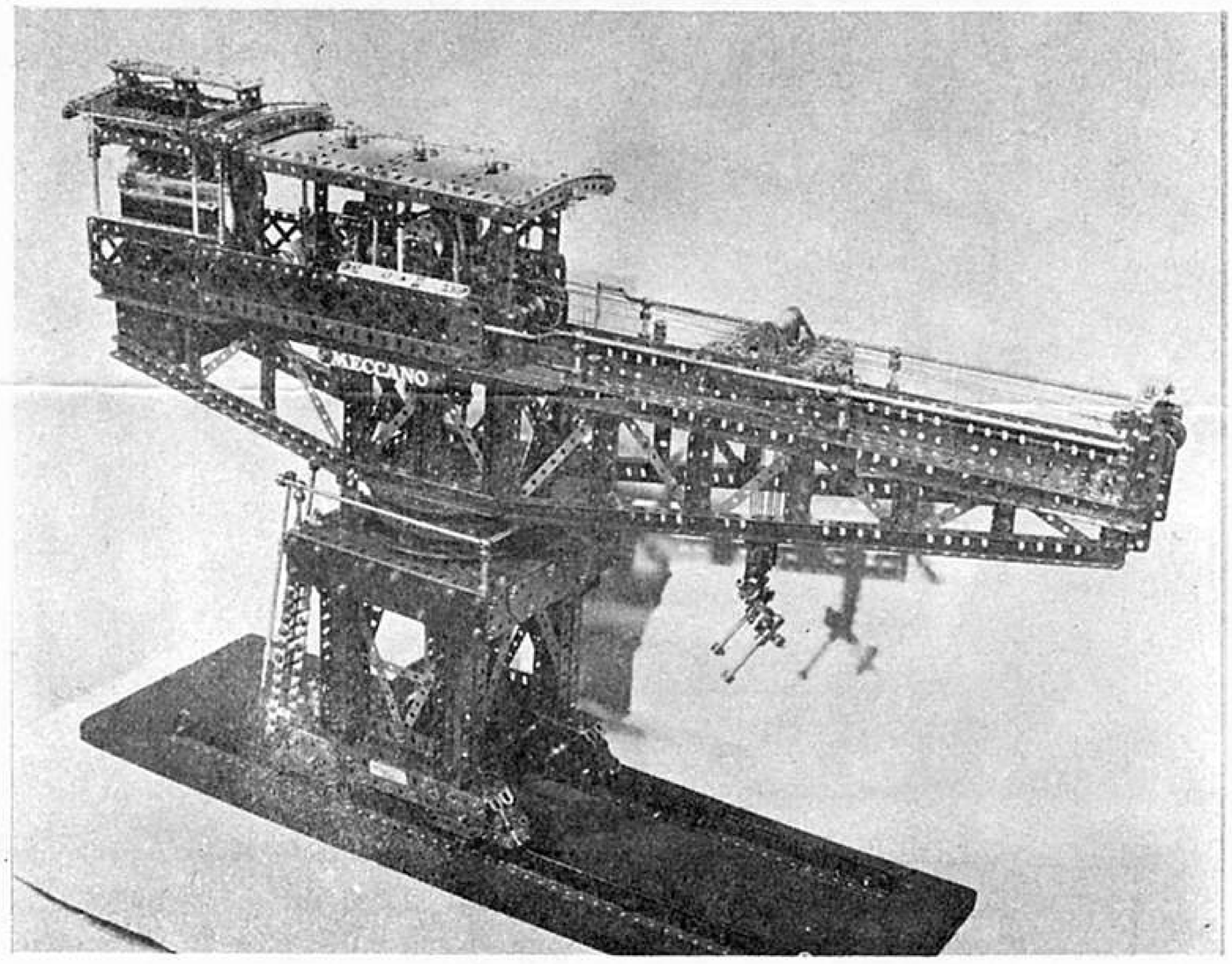
These assembly notes are intended for use in conjunction with the photographs of the Blocksetting Crane appearing in the January 1975 issue of Meccano Magazine Quarterly.



GIANT BLOCK-SETTING cranes have always been popular in Meccano, but advanced models have usually been powered by electric motors. It seemed a good idea therefore to try to drive such a crane entirely from a single Meccano Steam Engine.

It has been said times without number that, with complex models, it is essential that all moving parts run freely. This crane weighs 30 lbs and, unless every gear, pinion and axle runs freely when installed, there will not be sufficient power at the track for the crane to move. It is no good hoping that a binding gear will loosen up; it won't, and will be difficult to trace once it becomes just a part of the whole train. Incidentally, the Steam Engine used was modified to enable it to run repeatedly at exhibitions, without causing rusting to its supporting structures, and was placed in an aluminium tray to restrain condensed water, but this is not essential.

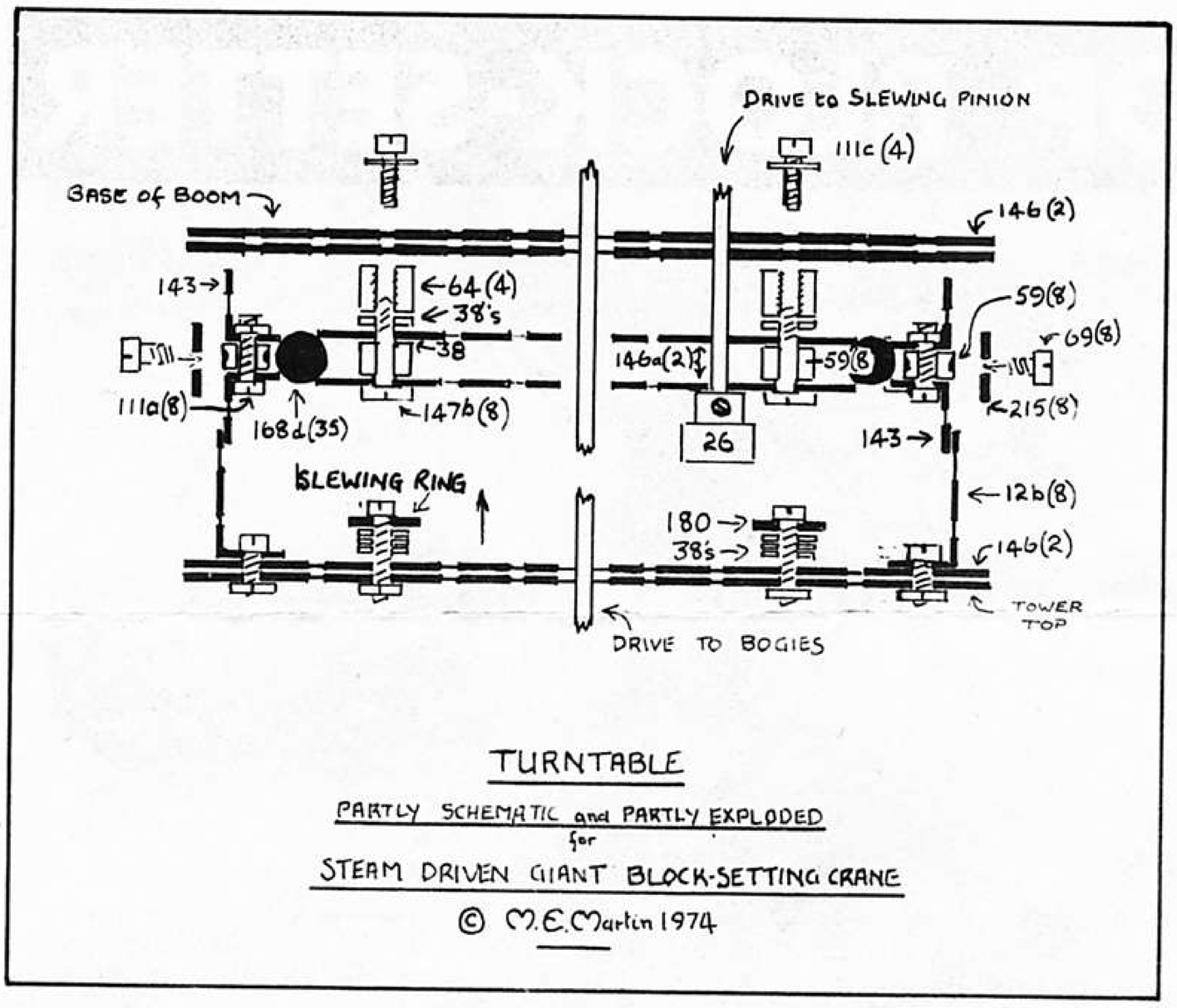
GANTRY BOOM

Each side of the boom consists at the top of 'U' girders formed from two 24½" Angle Girders bolted together by the slotted holes and butt-jointed by Strips to two 9½" Angle Girders similarly joined at the rear (see Fig.1). The bottom 'U' girders are likewise constructed, the forward end from 18½" Angle Girders, the middle from 5½" and the rear from 9½" Angle Girders. Top and bottom of the boom are connected at the front by 1½" Angle Girders facing inwards; along the centre section by three equally-spaced pairs of 3½" Angle Girders, arranged to form three 'U' girders and secured by Flat Trunnions top and bottom and, at the rear, by the outer edge of a 2½" x 2½" Flexible Plate which forms the end plate of the ballast box. The top 'U' girder projects one hold beyond this Plate. The rest of the vertical bracing can now be put in, using single Angle Girders attached at the back by 2" Slotted Strips and 1" Triangular Plates. At the front end 1½" and 2" Strips are used with Angle Brackets bolted to them to simulate girders. Cross bracings are Narrow Strips, with Fishplates being used where necessary to adjust for length.

On completion, the side frames should be compared and matched. They are spaced apart by two 3½" Angle Girders top and bottom at the front and by three 3½" x 2½" Flanged Plates at the rear, the latter bolted around the 2½" x 2½" Plates mentioned above to form an open-topped box for the counterweight. Each side frame has a 4½" Angle Girder bolted along the back of both the front and the rear vertical 'U' girders and the two side frames are joined top and bottom by four more 3½" Angle Girders. At both front and rear of the centre section, 5½" Strips are bolted diagonally from the top of each side across to the bottom of the other side, thus forming a rigid box above the turntable. Flat Girders, projecting inwards, are fixed, end to end, all along both sides of the top and, to these, are attached 18½" Angle Girders at the front to form the trolley rails (see Fig.2).

ENGINE MOUNTING

After putting sufficient ballast in the ballast box to counterbalance the front end of the boom, the Meccano Steam Engine is bolted to the rear end, with a 4½" x 2½" Flat Plate in front to form the bottom of the gearbox. The gearbox sides each consist of 3" x 1½" Flat Plates, fixed to the Steam Engine



TURNTABLE

PARTLY SCHEMATIC and PARTLY EXPLODED for STEAM DRIVEN GIANT BLOCK-SETTING CRANE

© M.E.Martin 1974

Diagram by the author showing the sturdy construction of the turntable.

side plates, and leading on to 4½" x 2½" Flat Plates and Flat Girders, all secured to the base plate by Angle Girders as shown in Fig.3.

TURNTABLE

The turntable is a captive ball-race. The outer race, to be secured to the tower, is made from two 5½" diameter Circular Girders, back to back, but spaced apart by eight Collars held by ½" Bolts. The centre race is two 4" diameter Circular Plates held apart by eight Collars and additional Washers, each Collar being secured by Pivot Bolts. The distance apart of the two plates is critical and some experimenting will be needed before the ring of Ball Bearings, fed into the gap between the inner and outer races, will move freely without shake. The centre plate, minus the top plate and Pivot Bolt nuts, should be placed on a flat surface, the outer race placed around it, and Ball Bearings placed around leaving a small gap. The top plate is then dropped on and the nuts secured. Slackness will mean thinner washers are needed and Electrical Set Washers will prove useful. Make certain that everything is concentric and that the Collars used on the outer race are as far out as they will go. When satisfied, grease lightly and replace four alternate Pivot Bolt nuts with Threaded Bosses, raised by Washers so that their tops just clear the raised flange of the Circular Girder.

The top of the gantry support tower is a 7½" square box built up from 7½" Angle Girders at top and bottom and spaced apart at the corners by 1½" Angle Girders. The sides are filled in by overlapping 5½" x 1½" Flexible Plates reinforced by 2½" Semi-circular Plates (see Fig. 1). Across the inside of this box top, two more 7½" x 1½" 'U' girders are fitted parallel to one another and 5½" apart, and yet another pair of 5½" x 1½" 'U' girders stretch between these two girders to make an internal box square 5½" x 5½". The space between the inner and outer frames is filled in on top by 1½" wide Flexible Plates with 2½" x 2½" Triangular Flexible Plates filling in the internal corners. Two 6" diameter Circular Plates are bolted to the centre of the 5½" square and are raised slightly on Washers. A Gear Ring, raised by three Washers, is bolted to the Plates and carefully centred. Underneath the tower-top, along two opposite sides, pairs of 7½" Angle Girders are bolted, each pair back-to-back, their downward flanges to be used to attach the tower legs.

Each leg consist of four 5½" Angle Girders making an 'H' girder (with 4½" Flat Girders strengthening the web) bolted to the tower top and to another back-to-back pair of 7½" Angle Girders on the base of the tower, these being strengthened by Flat Girders. Each base is an open-ended, three-sided box girder constructed from three 7½" Flat Girders joined by Angle Girders and Girder Brackets (see Fig. 4). The bogie sides are 2½" Flat Girders extended at the bottom, one hole each end, by 3½" Strips, the sides being spaced apart by ½" x ½" Double Brackets and Washers to allow the three ½" Pulleys with bosses to have some space to move. All fixed pulleys and gears need two Set or Grub Screws.

BOGIE DRIVE

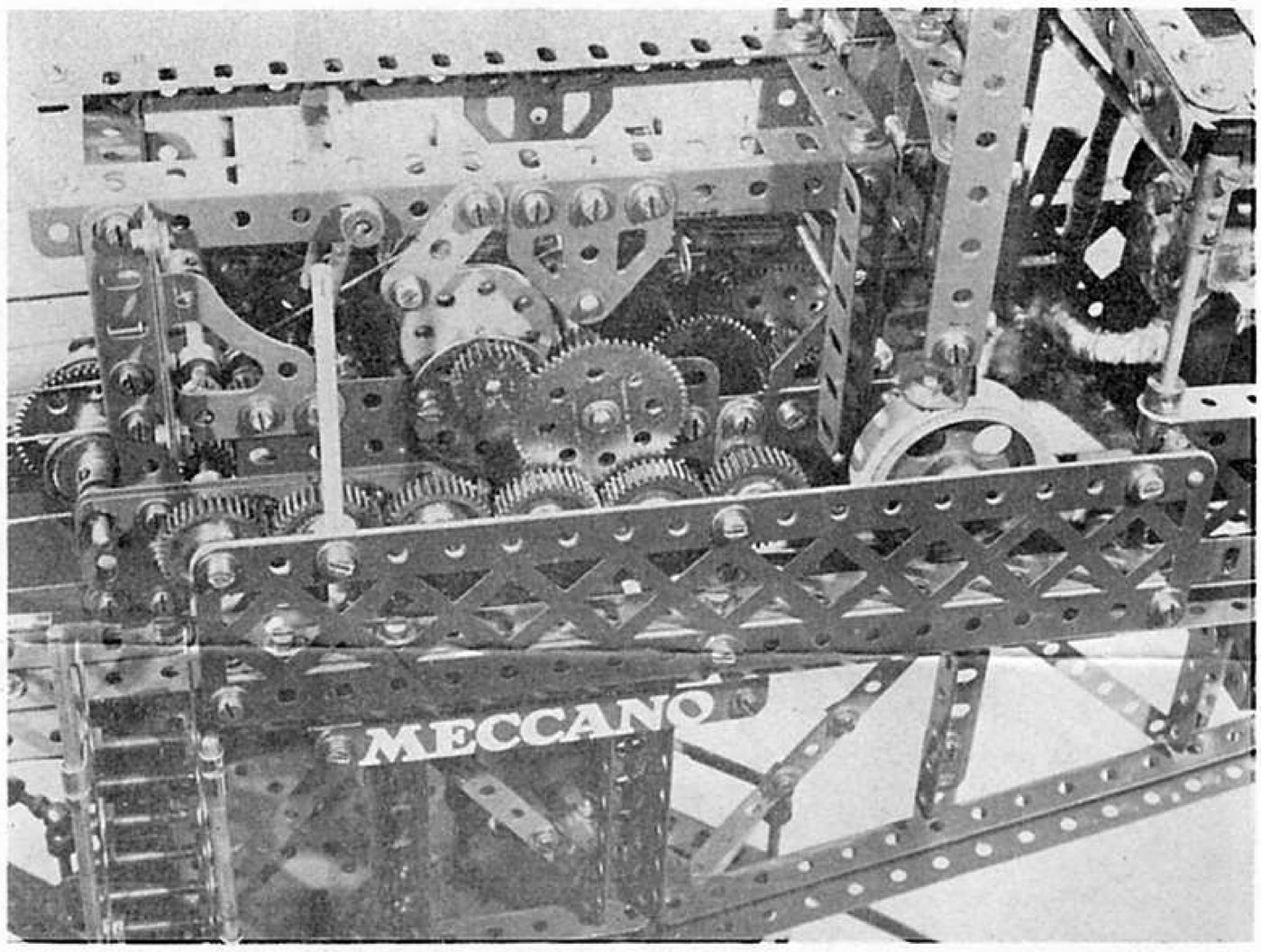
The bogies float on Axle Rods secured in a Double Arm Crank bolted top centre in the bogie. These Rods pass through the sides of the base and extend inwards far enough to allow a 60-teeth Gear Wheel to be fitted on it, free to turn and held on by a Collar. On each bogie, the two end ½" Pulley axles also extend inwards and have ¾" Pinions fitted which mesh with the 60-teeth Gear Wheel. The centre Pulleys are not driven.

The all-important drive to the track will pass down through the gearbox base and on down, via a Flexible Coupling Unit, to a gearbox in the bottom centre of the tower top. Here it splits sideways through a 2:1 reduction system to travel down the centre of each side by means of an Axle Rod, journalled at the bottom in a Threaded Coupling attached to the inside of the base. Here a ¾" diam. Bevel Gear drives two more ¾" Bevels on short horizontal Axle Rods also running through threaded Couplings and with ¾" Contrates on the ends. These mesh with ¾" Pinions, free to rotate on stub axles on the base side and meshing with the 60-teeth Gear Wheels mentioned above. It is worth spending time on these gears – which must be secure, but absolutely free-running.

ASSEMBLY

Assembly can now start to complete the crane. The turntable can be attached to the tower by Angle-Brackets, but a neater result is obtained by bolting a ring of eight 1" x ½" Angle Brackets to the outer holes of the tower's Circular Plate. The turntable will fit inside this ring. Formed slotted Strips are placed around the ring and the whole

lot secured by eight Set Screws screwed into the threaded holes of the spacing Collars on the Circular Girders. Before fitting the turntable, a ½" Pinion is fitted on a 2" Rod passing through the pair of holes in the centre race so that it will engage with the inside teeth of the Gear Ring which is attached to the tower top. A 6" Circular Plate is bolted to the base of the boom using 1½" Flat and Angle Girders, and the boom with the Plate is placed on the turntable, so that the 2" Rod passes to the rear of the centre hole and a Collar is fitted. Four Bolts through the Circular Plate into the four Threaded Bosses hold the assembly firmly in place.



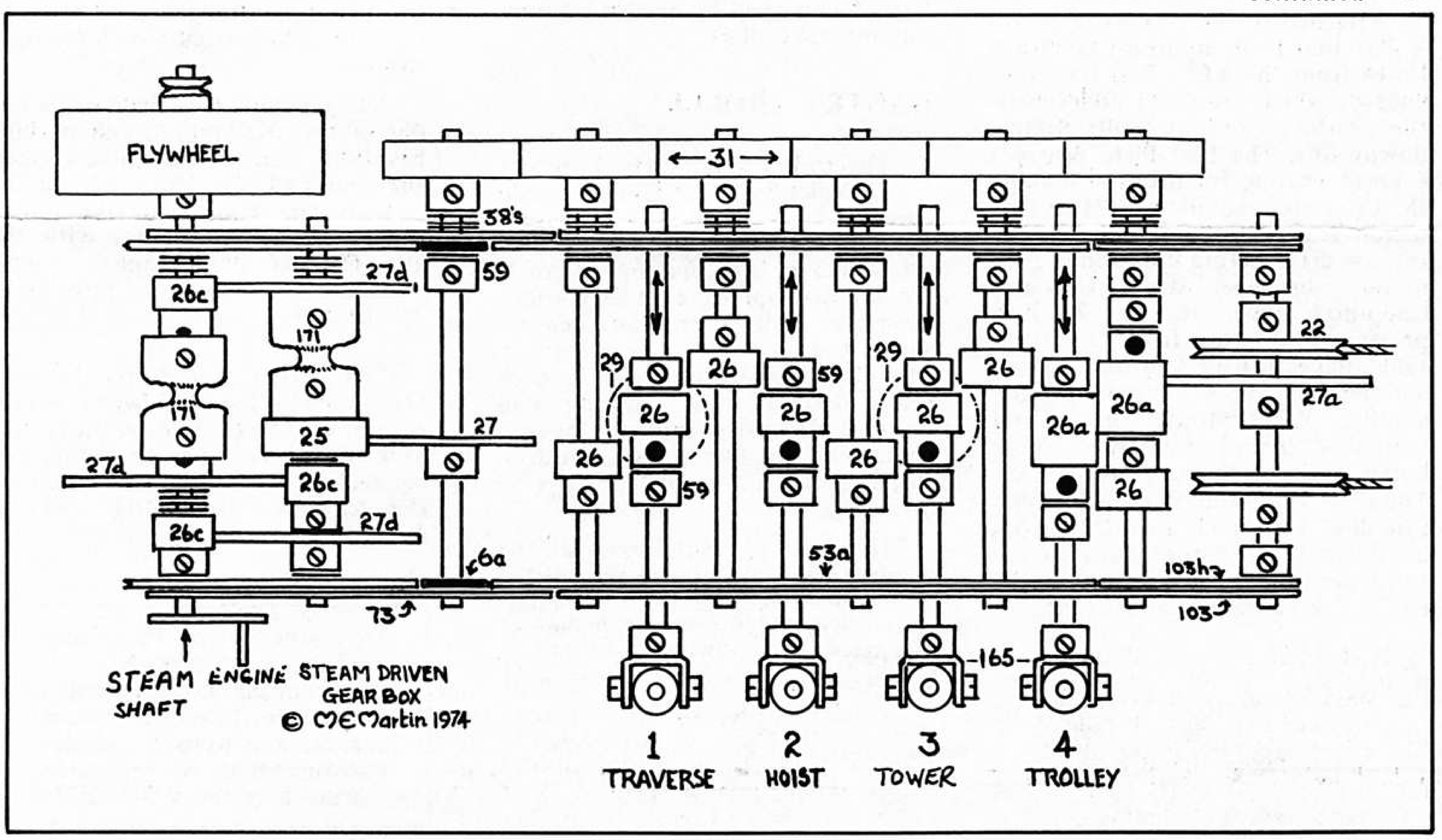
This photograph, reproduced from the January 1975 issue of the MMQ, shows the gearbox which is built into the Block-setting Crane. A diagramatical view of the gearbox, drawn by the author, appears below. A complex unit, it allows all movements of the model to be powered by one Meccano Steam Engine.

GEARBOX

The diagram of the gearbox shows just one horizontal plane from the crankshaft to the trolley rope pulleys. A compact gear train drives a Rod with a 1" Gear which drives a further five 1" Gears. Staggered along the Rods and turned by these Gear Wheels are ½" Pinions. Between these Rods are further Rods which slide in and out under control of vertical handles fitted to Swivel Bearings at the end. The handles pass downwards into the ends of four Couplings which have a Rod passing through all four of them (with Washers filling in the spaces). This Rod is held by a Double Angle Strip bolted to the deck of the crane. The sliding Rods have ½" Pinions held by Collars and free to rotate. In the neutral position no power is transmitted to these 'idler' Pinions, but, pushed in or out, they engage the rotating Pinions and turn one way or the other.

Journalled in the gearbox sides beneath Rod 1 is another Rod (held by Collars) on which a ½" x ½" Pinion is secured, this Pinion meshing

continued →



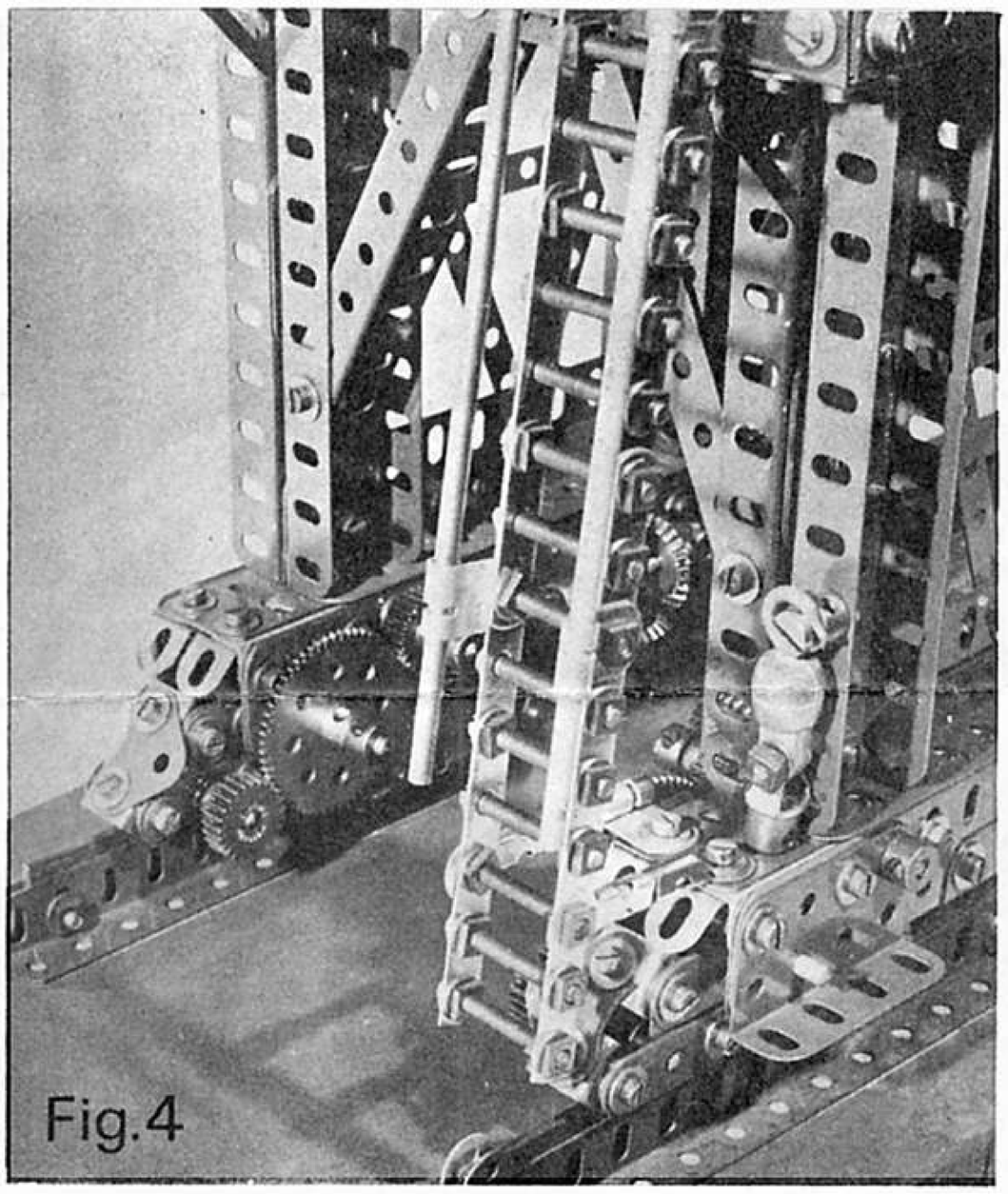


Fig.4

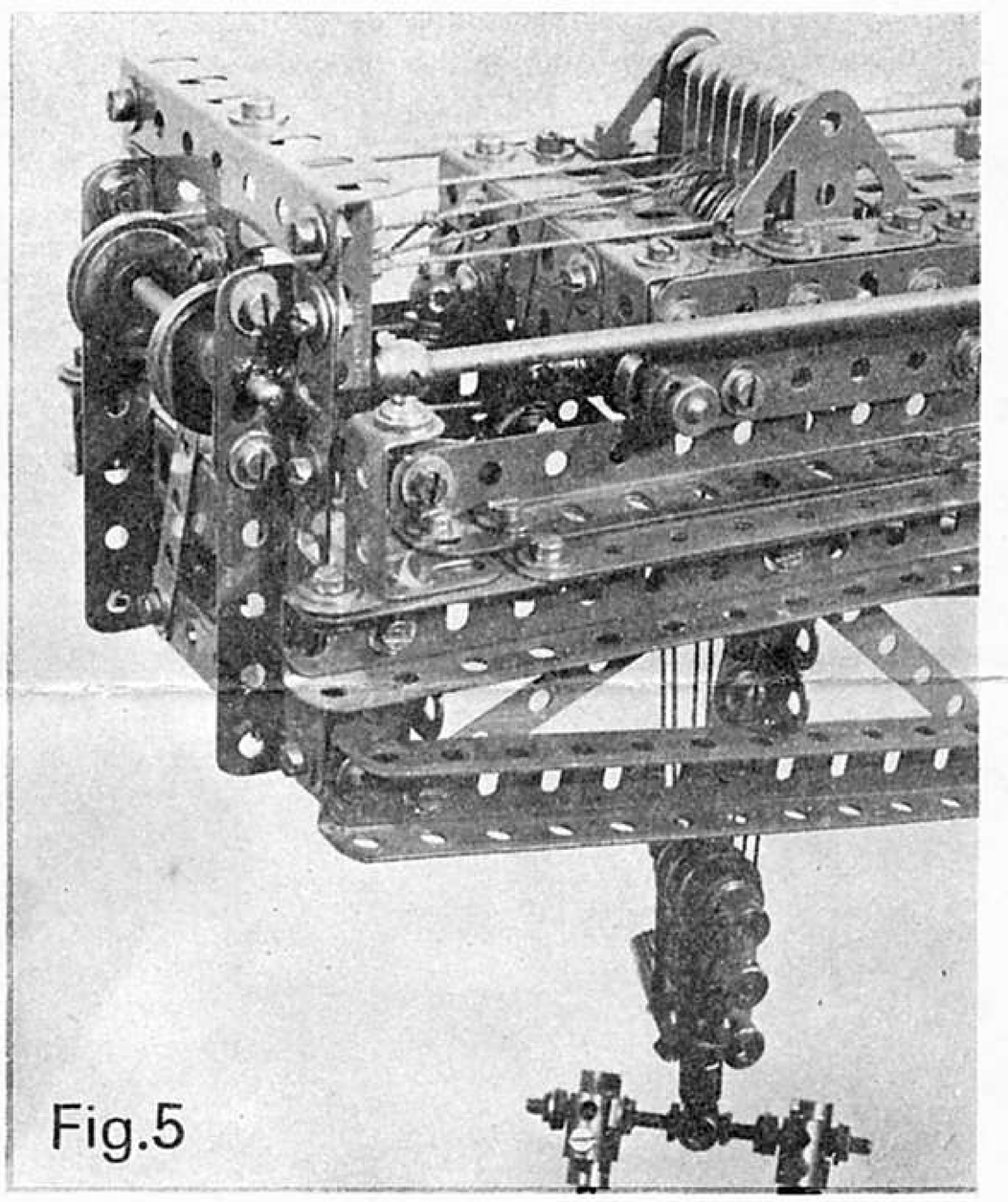


Fig.5

Two more photographs reproduced from the January 1975 MMQ. Left, the tower base showing details of final spur drive, ladderwork and auxiliary hook stowage. Right, gantry head details and trolley construction.

with the idler Pinion above it. Passing up through the gearbox floor beneath it is a vertical Rod on which a ¾" Contrate is fixed to engage with the ½ x ½ Pinion.

Attached to the corners of a 2½" x 2½" Flat Plate are four Cylindrical Cores from the 4EL. Set, the other ends of which are fixed underneath the gearbox floor by Bolts passing downwards. The Flat Plate provides a lower bearing for the Rod holding the Contrate, and allows further reduction gearing to be installed to the traverse drive, before it descends once more through two Universal Couplings down to the 2" Rod projecting upwards from the turntable. Beneath Rod 3 in the diagram another ½" x ½" Pinion driving another ¾" Contrate on a Rod journalled in a Double Arm Crank bolted underneath the gearbox floor. The drive is continued via a Flexible Coupling Unit and a further Rod, on down through the centre of the turntable to join the gear train to the tower drive as mentioned earlier.

Rod 2 has a ½ x ½" Pinion *above* it, its Rod projecting into the space between the gearbox side and the row of 1" Gear Wheels. There, a ¾" Pinion takes the drive up and forward to a 60-teeth Gear Wheel on whose axle the winding drum is mounted. A brake will be needed on this drum, but the modeller's own type can be used. Both ends of the cord are wound on this and it should have a central divider. Small 7/64" Grub Screws will be needed on some Pinions and Collars.

GANTRY TROLLEY

The trolley sides each consist of two parallel 3½" Flat Girders joined together at each end by Channel Bearings. The two sides thus formed are joined at each end by 3" Angle Girders overlapping 3" Flat Girders. Four ½" Pulleys are mounted on short Rods, one at each corner. A Trunnion is fixed centrally to each side and six 1" Pulleys are mounted on a Rod passing through the top centre holes of the 3½" Flat Girders. Rope guides are supplied by 1½" Strips.

The hoisting cable starts at the winding drum, passes over the outside Pulley then is taken down to the hook sheave which has four ½" Pulleys – and passed under the outer ½" Pulley. It is then taken back over the next 1" Pulley, down and up again and then on to the end of the boom where it passes round a strategically-placed Pulley on a vertical Rod before being taken back to the trolley over pulleys four, five and six and then further back to be tied to the other side of the winding drum. Thus the winding drum winds in both ends of the cord, preventing the irritating tilting and twisting of the hoist which occurs with multiple sheaves.

Many details have had to be left out of this description, and nothing has been said of the Filders Gear, the roof and side structures on the rear of the crane, nor the pulley frame at the front, but with the aid of the photographs – and patience! – it should be possible to construct it.

The author would like to acknowledge the helpful advice supplied to him by Mr. B. N. Love (who also took the photographs reproduced in connection with this description in the January 1975 MMQ) and by Mr. H. J. Halliday.

We regret that no Parts List is available for this model. Quite understandably, the author dismantled the model, without preparing a parts list, before knowing that we wished to feature it in the MMQ. Sorry!

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